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ABSTRACT

The extent to which households use, store, and dispose of hazardous materials has become a matter of increasing concern but has been rarely assessed. This report provides an assessment of the first household hazardous materials publicity campaign and collection event held in Illinois. The report describes survey results concerning the state of public awareness, use, and disposal of household hazardous materials prior to and immediately after the publicity campaign in Champaign County. Comparisons with the city of Decatur are included. On public policy issues, overwhelming majorities in each community expressed support for various types of special household hazardous waste collection programs. The collection event was very successful in extending basic awareness and in reaching households with unwanted hazardous waste. The event drew only 0.7 percent of the city households but collected 7 percent of the quantity of hazardous waste improperly disposed of each year. The surveys also indicated a need for an educational program to reduce the production of hazardous waste by households. To fund these programs, the public favored either a special sales tax on hazardous materials or a surcharge on solid waste disposal in landfills. (Author/CW)

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HAZARDOUS WASTE RESEARCH AND INFORMATION CENTER
Illinois State Water Survey Division
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HWRIC RR-025

Participation in a Household Hazardous Waste Collection Drive and "Before" and "After" Public Knowledge and Disposal Practices: Champaign County

by

Roland J. Liebert
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PARTICIPATION IN A HOUSEHOLD HAZARDOUS WASTE COLLECTION DRIVE AND "BEFORE" AND "AFTER" PUBLIC KNOWLEDGE AND DISPOSAL PRACTICES: CHAMPAIGN COUNTY

Technical Report

by

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LIST OF ABBREVIATIONS

CUF = Champaign/Urbana/fringe

HHM = Household hazardous materials

HHM&W = Household hazardous materials and waste

HHW = Household hazardous waste

HWRIC = Hazardous Waste Research and Information Center

SRL = Survey Research Laboratory (University of Illinois at
Urbana-Champaign and at Chicago)

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Richard Fee of the Meredith Corporation was the inspiration, and his company the funding source, behind the inclusion of farmers in the Champaign County collection event. The Champaign County Farm Bureau was generous in providing a list of anonymous telephone numbers of farmers in the county, making possible the July telephone survey of farmers on short notice.

ABSTRACT

The extent to which households use, store, and dispose of hazardous materials has become a matter of increasing concern but has rarely been assessed. This project report provides an assessment of the first household hazardous materials publicity campaign and collection event held in Illinois. The collection event date was September 13, 1987, in Champaign County. This report describes survey results concerning the state of public awareness, use, and disposal of household hazardous materials prior to and immediately after the publicity campaign in Champaign County. Comparisons with the city of Decatur are included.

Results from the two surveys indicated that 30-40 percent of the urban households had heard about hazardous waste problems before the campaign and nearly 60 percent had heard about them after the event. Most of the public could assess hazardousness of materials reasonably well. Farmers were generally much better informed than were city dwellers. In all communities, the better-educated and established citizens were better informed about hazardous waste than were others and were more likely to become better informed during the campaign. While each farm household had on average over 26 partial or full containers of hazardous material, urban households had an average of 10 such containers at their homes. This came to an estimated total of over 390,000 partial or full containers at Champaign/Urbana homes alone. Established citizens, homeowners, and larger households had greater quantities. Environmentally inappropriate disposal of hazardous waste from homes exceeded an estimated total of 38,600 containers per year in Champaign/Urbana, 30,750 per year in Decatur, and 1,490 per year among Champaign County farmers. The inappropriate disposal of these containers from Champaign/Urbana would, if left uncrushed, fill a 74 to 158 cubic yard site.

On public policy issues, overwhelming majorities in each community expressed support for various types of special household hazardous waste collection programs. The collection event was very successful in extending basic awareness and in reaching households with unwanted hazardous waste. The event drew only 0.7 percent of the city households but collected 7 percent of the quantity of hazardous waste improperly disposed of each year. The surveys also indicated a need for an educational program to reduce the production of hazardous waste by households. To fund these programs, the public favored either a special sales tax on hazardous materials or a surcharge on solid waste disposal in landfills.

EXECUTIVE SUMMARY

This project is part of an effort to help Illinois communities develop effective public educational and disposal programs regarding household hazardous materials and waste (HHM&W). The general objective of this effort is to build a knowledge base that will be useful in developing programs aimed at (a) enlisting public cooperation in reducing the quantity of household hazardous waste (HHW), and especially in reducing the quantity disposed of in environmentally harmful ways, and (b) encouraging the public to employ safe and environmentally responsible handling of household hazardous materials (HHM).

Behind this effort is the Hazardous Waste Research and Information Center (HWRIC). HWRIC is developing a variety of materials for use in HHM&W public education campaigns and collection events in Illinois communities. As part of this developmental process, HWRIC provided some funding and support for what became, in effect, a publicity campaign promoting a collection event in Champaign County. The present project is an evaluation of that campaign and event, a review of earlier such campaigns and events throughout the nation, and a report on surveys of the public's awareness, disposal practices, and attitudes regarding HHM&W.

The Champaign County HHW collection event occurring on September 13, 1987, was the first of its type conducted in Illinois. Preceding, during, and immediately after this event, the publicity campaign sought to inform the public about the date, place, and reasons for the collection event, to invite public participation, and to increase public awareness of problems and alternatives in using HHM and disposing of HHW. Preceding the campaign, a household survey was conducted in July 1987 with a sample of 701 households in Champaign/Urbana and their immediate urbanized fringe, a sample of 94 farmers in Champaign County, and a sample of 151 households in a comparison community, Decatur, Illinois. That survey assessed public awareness, possession, and disposal of HHM&W. After the collection event on September 13, there was a second survey conducted in early October that was essentially identical to the first survey. A third on-site survey gathered information from those who participated in the collection event itself.

This report is based principally on these three surveys and describes what urban and rural households in Champaign County actually think about and do with HHM&W. It includes an evaluation of the collection event and publicity campaign. This information provides a basis for designing and targeting HHM public education programs and HHW collection drives in other communities.

In general, the survey findings indicate that there is a genuine public concern and need for these programs. Viewed from inside the house, hazardous materials are nearly everywhere and are a source of much concern. Our survey of Champaign/Urbana/fringe (CUF), Decatur, and Champaign County farmers found that people were surprisingly aware of what HHM&W are and of the extent to which they are a hazard. Households in general contain substantial quantities of these materials. One in every 10 households had HHW around the house that they would like to get rid of, but they are left with little option except inappropriate disposal. A successful collection drive can at best collect less than 10-25 percent of what people in households want to get rid of or routinely and inappropriately dispose of. To achieve further reductions in inappropriate disposal or in HHW accumulating around homes, the principal remaining option is an effective educational program aimed at waste reduction. Most of the public (60 percent) prefers to use nonhazardous substitutes, and the overwhelming majority (over 80 percent in each community) favors government efforts to promote nonhazardous substitutes. In general, the public prefers to minimize HHW and favors public programs that would provide an environmentally responsible disposal alternative.

Examining public awareness in more detail, it was found that a substantial proportion of each community already had some knowledge about HHW before the publicity campaign began. The farmers were generally much better informed than were CUF residents, and the latter were better informed than were Decatur residents. For example, nearly 6 out of 10 farm households, nearly 4 out of 10 CUF households, and nearly 3 out of 10 Decatur households had already heard something about HHW before the first survey took place in July. Just over 75 percent of the farmers and over 80 percent of the CUF households were able to identify at least one type of hazardous household material or waste, while in Decatur it was just over 70 percent of households. After the publicity campaign, the second survey in October found a growth of 20 percentage points in the number of aware households in CUF and among farmers, while the growth in awareness in Decatur was only 7 percentage points. The number of households with the ability to identify examples of HHW also significantly increased in CUF but not among farmers or in Decatur.

The relatively better educated and longer term residents, those who lived in single-family houses, and those displaying community identity and responsibility by voting and recycling were most likely to be informed by some source at the time of the first survey, especially from the more effective interpersonal sources such as friends, co-workers, and clubs. They were also more able to identify examples of HHW. The 20-30 percent who could not identify examples of HHW at the time of the first survey, and the nearly 7 of 10 in Decatur, 6 of 10 in CUF, and 4 of 10 on the farms who remained unfamiliar with the concept of HHW until our interview, tended to be the relatively less well educated, the relatively newer residents, the non-homeowners, and those less involved in the community.

It was expected that the publicity campaign would widen awareness and knowledge to the less educated and to apartment dwellers. Although some of these did become more aware and informed about HHM&W, the greatest gains were made by those who were better informed to begin with: the better educated, the more affluent, those living in single-family houses, the civic minded, and the longer-term residents. This creates a mounting need to find ways to reach the younger, transient, apartment population.

When respondents were reminded of specific examples of HHM and then asked how hazardous these products were, over 90 percent could give a hazardousness rating. Not only could they give ratings if they were reminded of types of HHM, but their relative ratings were on average generally fairly realistic and sound in light of present scientific judgment about the relative hazardousness of various products (Gosselin et al., 1984). After the publicity campaign, the public gave a higher hazardousness rating to most types of HHM. This may indicate either increased knowledge or a rising sense of concern.

The findings on awareness suggest two strategies in HHM&W educational and promotional campaigns. One strategy involves communicating fairly complex information regarding the nature of hazards and methods of HHW reduction, addressing this information to those who already have minimal awareness--namely, the relatively better educated, the longer-term residents, and the civic minded. The second strategy involves communicating more basic messages, aimed mainly at providing recognition of HHW as a problem and addressed to those who are initially less aware in order to move them to a stage where more complex messages might subsequently be made effective as well.

In general, we found that interpersonal networks, (including friends, co-workers, and clubs), along with "talk/information radio," were the chief means of communicating new information about HHM&W to those who were already somewhat aware. The entertainment mass media (TV and music radio) reached a much wider population, but this audience was not well informed or aware of HHM&W. Use of a combination of the two forms of media with appropriately matched messages appears to be needed to reach all sectors of the community.

The study provided detailed findings on the quantities of hazardous materials in homes. In CUF, the average household had 10.4 containers of HHM in storage in July, with only 11 percent of households having 2 or fewer containers. This comes to an estimated total of 390,100 containers of HHM in CUF households, which would occupy 750 to 1,600 cubic yards if these containers were collected together in one place and left uncompressed. (See Appendix E for assumptions behind the conversion of container counts to volume estimates.) Of these containers, nearly 60,000 or 15.3 percent (averaging nearly 2 per home) were containers of pesticides or herbicides. Decatur households had an estimated total of 417,700 containers of HHM in July, and the farm households had an estimated total of 49,000 containers of HHM. There were no significant changes from July to October in any of the three communities with regard to the quantities of containers of HHM in storage at homes.

In general, those in CUF and Decatur who had the most HHM&W around their homes seem to be the economically upscale, larger-household people in single-family houses and those who are active as voters in local elections and (for CUF only) in recycling of bottles, cans, and newspapers. In short, their profile is similar to that of people who had heard something about HHW, and, in fact, the high-quantity possessors were more likely to have already heard something about HHW. Among farmers, younger respondents and again those with larger households had more HHM&W on hand. Interestingly, men reported higher quantities than did women, especially among farmers. For CUF and the farmers, changes in correlates of quantities possessed from July to October were not generally great enough or consistent enough to suggest a pattern.

In other comparisons of July and October, the percentages having large quantities of specific materials (20 or more containers of a given type) were not reduced by the collection drive or by the associated publicity in any of the two cities or the farm samples. In fact, the percentages having larger quantities actually rose (but not statistically significantly) in all three communities (up from 4.4 percent to 5.9 percent in CUF, from 4.0 percent to 6.0 percent in Decatur, and from 17.0 percent to 25.0 percent among farmers). These extreme cases differed from those with lesser quantities principally in that a greater preponderance of the former lived in single-family houses (in the cities) and were younger (farmers) than was true of the latter.

Disposal of HHW was not commonly carried out by many households. Fully 82 to 100 percent (typically about 95 percent), depending on community and type of HHW material, were not disposers during the previous year. Clearly, most households have some alternative to disposal, often by not acquiring the material or by keeping it until used.

Another important finding concerns the number of containers of HHW that were inappropriately disposed of (e.g., in the garbage or on the ground) during the 12 months preceding each survey. There was no change from July to October in reported inappropriate disposal during the previous year. For that reason, findings summarized here are from pooled data from both surveys. In CUF, an estimated 38,600 containers of HHW were inappropriately disposed of during the previous year. This quantity of containers left uncompressed and if put in one place, would take up an estimated 74 to 158 cubic yards. In Decatur, there were an estimated 30,750 containers inappropriately disposed of during the year preceding the survey, and from Champaign County farms there were an estimated 1,490 containers inappropriately disposed of during the previous year.

Those who inappropriately dispose of HHW are equally prevalent in all sectors of the population, except for two rather different groups who have higher rates of inappropriate disposal--the younger people and those who "currently" have large quantities on hand. Since the latter tend to be of higher socioeconomic status, live in single-family houses, and have large families, they tend to be people in the productive years of mid-life. They acquire lots of HHM&W and inappropriately dispose of some of it. The younger population, although acquiring no disproportionate quantity, tend also inappropriately to dispose of some of what they do acquire.

Based on previous experience with HHW collection events, a successful annual event can begin to reduce the estimated rate of inappropriate disposal but probably will not eliminate it. The Champaign County collection event received much more household and farm hazardous waste than the budget for the event would pay to have removed. Yet this event took in only 7 percent of what the communitywide surveys indicated was being annually inappropriately disposed of by households. There was no apparent reduction in inappropriate disposal as a result of the collection event. It is apparent that collection events must either take in substantially more than they have in the past or be preceded by educational campaigns that seek to reduce the generation of HHW in the first place.

In addition to what people have inappropriately disposed of in the previous year, there is a substantial quantity of unwanted HHW that people have been storing while they look for a way to get rid of it. In CUF before the publicity campaign, an estimated 3,300 households, or 8.8 percent of the total, were storing unwanted HHW. By the end of the publicity campaign, these numbers had risen to an estimated 4,396 households, or 11.7 percent, with unwanted HHW in storage. Farmers experienced a similar rise, while the control community of Decatur had a decline in households storing unwanted HHW. The change in CUF households and among farmers may reflect increased unwillingness to dispose of HHW improperly or an increased awareness that they had these materials. For whatever reason, the publicity campaign was highly successful in reaching those households that ended up having large quantities of unwanted HHW by the end of the campaign.

Because of the volume of HHM that passes through or stays in nearly all homes, an educational campaign could address a number of issues about proper handling of HHM&W. Most households seem to be receptive to, if not already familiar with, some of these issues. Most respondents (from 54 to 74 percent depending on community and survey data) reported that they look for products with warning labels when they buy HHM and that they prefer to buy less harmful alternatives. Over 60 percent of respondents in all communities in July reported paying special attention to each of five types of information about HHM&W, and these percentages rose significantly (approaching 90 percent) after the publicity campaign. Farmers were especially attentive to HHW information both before and after the campaign. In Decatur, there was some increase in attention, but it was not significant for three of the five types of information.

Perhaps because the issue is so new, nearly half of the samples felt that they could not comment on the adequacy of funding for disposal of hazardous household waste. Of those who did comment, this function of local government received the highest "pro-spending" response of the six functions listed for comparison in the pre-campaign survey.

The public in all three communities strongly favors requiring manufacturers to provide warning labels on HHM containers. Over 90 percent in all communities agreed that government should promote nonhazardous alternatives to HHM and that laws should bar dumping HHW in the sewers or on the ground. In July, before the campaign, approximately 6 percent of the public in each community disagreed with allowing HHW to be hauled to the community landfill. In October after the campaign, approximately 70 percent of CUF and farmer respondents disagreed with disposal of HHW in the community landfill. Opinion in Decatur remained essentially unchanged in this regard.

It is evident that the public favors an environmentally appropriate HHW disposal option. Both before and after the collection event, over 85 percent of the respondents in each of the three communities indicated interest in participating in an HHW collection program that would provide appropriate disposal. A special HHW collection program with curbside pickup was favored by the urban residents. The proportion in CUF favoring the collection site drop-off option increased after the community's experience with the September 13 collection event in Champaign County.

The most preferred way of funding an HHM&W program was to have a sales tax on hazardous products, with a close second place preference given to a surcharge on "tipping" truckloads of common household solid waste at the landfill.

In general, about one-third of the urban public had heard public discussion about HHM&W prior to the publicity campaign, but substantial majorities were nonetheless prepared to support new programs to improve the handling and disposal of these materials. The publicity campaign heightened public awareness and brought the issue into public discourse. The public's inclination to support an HHW collection program is consistent with a rather widespread basic awareness and sound assessment of HHM&W and a tendency by many households to withhold HHW from improper disposal while awaiting a disposal option. There is some indication that the public is increasing its storage of unwanted HHW as a result of the increased public awareness of the problems with HHW. Although substantial quantities of HHW are nonetheless still inappropriately disposed of for lack of an adequate alternative, the public clearly favors an aggressive special collection program and some form of public educational effort. The need for both is even clearer.

A related report, *Household Hazardous Materials and Waste: Public Education, Participation in Collection Drives, and Amounts in Homes* (HWRIC RR-026), is also available from the Hazardous Waste Research and Information Center.

CHAPTER 1

INTRODUCTION: THE NEED FOR INFORMATION

Communities across the nation have become increasingly concerned about household hazardous materials (HHM) and with the environmental risks associated with their disposal (Osborne, 1987; "Hazardous Waste in Your 'Home Sweet Home'," 1987; Duxbury, 1986). Examples of these materials include herbicides, pesticides, poisons, oven cleaners, drain openers, toilet bowl cleaners, varnishes, wood preservatives, oil-based paints, paint thinners, strippers, solvents, charcoal lighter fluid, propane gas, car motor oil, gasoline, kerosene, car antifreeze, and car, truck, or boat batteries. The list of hazardous materials used around households is certainly much longer if we also include fingernail polish remover, polishes, flashlight and other small batteries, photoprocessing chemicals, household detergents and cleaners, bleach, lead paint on interior or exterior surfaces, swimming pool chemicals, asbestos insulation, and so on.

There seems to be an ever-widening variety of these materials, along with increasing availability and use in homes (Enterprise for Education, 1986). Within the home, these materials pose problems to safety and health if they are not properly handled. Leftover or excess hazardous products around the home pose additional problems of safe storage and environmentally responsible disposal. The substantial quantity of household hazardous waste (HHW) that is discarded in residential garbage (Rathje et al., 1987) could adversely affect the quality of ground and surface water, as well as other aspects of the local environment ("Hazardous Waste ...," 1987; Cal Recovery Systems, 1986). For these and other reasons, states and local communities have in recent years been looking for ways to improve household and community management of household hazardous materials and waste (HHM&W).

This project report is part of a larger effort by the Hazardous Waste Research and Information Center (HWRIC) to help Illinois communities develop effective educational and disposal programs regarding HHM&W. The long-range objective is to help local officials and interested citizens who want to implement community programs that will

- enlist public cooperation in reducing the quantity of HHW in general, and especially in reducing the quantity sent to general purpose local landfills, poured into sewers, or dumped on the ground, and

- encourage the public to handle HHM in safe, environmentally responsible ways.

For local communities that want to pursue these goals, two kinds of information are especially relevant and useful:

a. Information about what the public in the community is thinking and doing with regard to HHM&W, such as

   - the extent of public awareness of problems or hazards associated with HHM&W;

   - the amount and types of HHM&W that households typically handle, use, store, or dispose of, as well as the methods of disposal; and

   - public preferences with regard to programs for the proper disposal of HHW.

b. Information about how an effective program can be set up and carried out, such as

   - the features of different programs and the purposes of each feature;

   - ways of targeting HHM&W programs to achieve maximum effectiveness;

   - how to assess the effectiveness of a program; and

   - other aspects (legal, financial, and logistic) of organizing a program.

This technical report focuses primarily on the first of these two sets of information needs, although a preliminary discussion of different programs and some implications about targeting a program are included here. A related report, Household Hazardous Materials and Waste: Public Education, Participation in Collection Drives, and Amounts in Homes (HWRIC RR-026), which focuses principally on the second information need, is a nontechnical summary and guidebook suitable for use by community HHM&W program planners. Both reports are being simultaneously published by HWRIC as part of the Champaign County Household Hazardous Waste Program Evaluation Project.

1.1. HWRIC and the First Illinois HHW Collection Event

HWRIC has a statewide role in promoting safe handling of HHM and environmentally sound disposal of HHW. To begin doing this, HWRIC wanted to help an Illinois community put together and carry out the state's first HHM public education campaign and HHW collection drive. By funding an evaluation of such a campaign and drive, HWRIC could develop a tested model that other communities could review and adapt to their own situations. HWRIC was also interested in finding out what the public thinks and does with respect to HHM&W around the home and how the public in Illinois communities feels about various program options.

In 1986-87, an opportunity arose to develop an HHM&W model program for Illinois and to acquire other information about household attitudes and behavior. The Intergovernmental Solid Waste Disposal Association of the City of Champaign, City of Urbana, and Champaign County expressed interest in conducting an HHM education campaign and HHW collection drive. HWRIC encouraged development of the Champaign program as a model (Komandina and DeWan, 1987). On September 13, 1987, the first Illinois HHW collection event took place in Champaign County.

HWRIC also funded an evaluation of the need for and effectiveness of the collection event. This evaluation consisted of three surveys in connection with the Champaign County campaign and drive. First, samples of city and farm households were surveyed in July 1987, two months prior to the September 13 collection event. The second survey was of participants in the collection event. In early October, there was a final survey of resampled city and farm households. The results of the July and October general household surveys and of the on-site collection day participant survey are the main concern of this report.

1.2. The Purpose of This Report

This report provides a background for planning and carrying out an HHM&W program. The report describes what urban and rural households in several Illinois communities actually think about and do with HHM&W. The main purpose of this analysis is to develop a basis for targeting and evaluating HHM public education programs and HHW collection drives in communities throughout Illinois.

The data bearing on these topics derive from surveys of households in three Illinois communities: Champaign/Urbana and its urbanized fringe, Decatur, and the farming community of Champaign County. The July household survey was conducted prior to the publicity campaign and collection drive in Champaign County, thereby providing information about public opinion and behavior before the public was exposed to efforts aimed at improving household handling and disposal practices. Decatur (in Macon County) was included because it provided comparison with a fairly typical community having, at the time of the surveys, no plans for an HHM&W program.

The October survey provides information after the collection event regarding public awareness of HHM&W, quantities around the house, quantities recently disposed of, and attitudes about various policy issues. The analyses in this technical report include an assessment of any changes that occurred during the publicity campaign for the collection drive in Champaign County.

The demographic attributes of most communities in Illinois may be found within or not far from the range that the three sampled communities define. With regard to any HHM&W behavior or opinion, the probability of any other Illinois community having very extreme departures from the range of what is reported here, while not objectively assessable without more surveys, is almost certain to be low. In any event, because we report the effects of demographic attributes on HHM&W behavior and opinion, it is possible for the reader to draw some conclusions about how the findings would differ for a community having a demographic composition that is different from any of the communities in our survey.

In addition to presenting the findings from the surveys and drawing implications for targeting and evaluating HHM&W programs in Illinois communities, this report includes a summary review of previous HHM&W programs in other parts of the nation (Chapter 2). This review provides background on some of the problems and issues involved in devising an HHM&W program.

1.3. Specific Objectives of This Report

The original study design called for random sample household surveys of two urban communities. One was a sample for surveying Champaign/Urbana/fringe (CUF) two months prior to those twin cities' first HHW collection event (the fringe was defined as the urbanized area serviced by telephone exchanges that are also used within the cities of Champaign and Urbana). The other urban sample was of Decatur, a community approximately 50 miles from Champaign/Urbana that had not had, and was not scheduled to have, an HHW collection drive. Decatur was a comparison community that would not be targeted for HHW publicity or educational efforts but might be potentially reached by media spillover from Champaign. A third sample, of Champaign County farmers, was added under separate funding (see Section 1.5). A resurvey with different samples in these communities was conducted in October.

For these samples, the specific objectives were to acquire the following information:

* Public perceptions of what types of materials are hazardous

* Public perceptions of the hazardousness of various materials

* Sources of information (from media and nonmedia) about HHM&W

* The types and quantities of HHM&W presently in homes

* The types and quantities of HHW discarded in various ways

* The types and quantities of HHW that people would like to get rid of

* How the public would prefer to dispose of HHW

* Public views about the priorities and policies that public agencies should have for problems involving HHW

* Practices, knowledge, and views regarding various hazardous waste reduction options

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* Concerns, motivations, and attitudes toward HHW and environmental quality

* Recycling practices regarding nonhazardous wastes

* Information interests and needs regarding HHM&W

* Demographic characteristics of the respondent and the respondent's household

In addition, this report includes several analyses of specific issues regarding the demographic attributes, levels of community participation, and types of media and other information sources reaching target households such as

- those that are least informed about HHM&W (as well as those that are most informed);

- those that possess the greatest amount of HHM;

- those that have improperly (in an environmentally unsound way) disposed of the most HHW in the past; and

- those that have the greatest amount of HHW that they want to get rid of.

The data on the number of containers of HHM presently in homes, on the number of containers recently disposed of, and on the number of containers that households want to dispose of are especially important. With reasonably valid estimates of these quantities from the surveys, and with information about the types of households that produce these quantities, it is possible to identify target subpopulations for educational campaigns. Helping communities identify target groups is one of the primary potential applications of this report to future HHM&W program planning.

Another potential application concerns the way in which success in collection events is assessed. Success is traditionally assessed as the proportion of the entire community that participates in the collection event. It is probably more informative and realistic to assess success as the proportion of a target population of households having hazardous materials that participates. The survey findings presented in this report provide an estimate of the relative size of this target population, thereby permitting development of improved measures of participation rates.

The survey data on public awareness of HHM&W will provide a realistic way of assessing the need for public education. The findings on the types of households that are most and least informed will provide a basis for targeting these educational efforts.

The survey data on public opinion regarding various policies and programs dealing with HHM&W will be of interest to planners who must select among policy and program options.

All of these data and analyses from the July survey provided a baseline for comparisons with similar data from the October resurvey of CUF, Champaign County farmers, and Decatur. The purpose of this comparison is to find out how a publicity campaign affects household awareness of HHM&W, household handling of HHM and disposal of HHW, and public opinion about policies concerned with HHM&W. The resurvey was undertaken within a month following the September 13, 1987, collection event in Champaign County. The comparison analysis is a key part of this technical report.

1.4. Organization of This Report

This technical report contains a description of survey procedures, findings, and summaries of previous projects in other states. The appendices contain a reproduction of all major print items used in publicity for the 1987 Champaign County collection event (Appendix A), a reproduction of the July and October 1987 survey questionnaires (Appendix B), question-by-question descriptive statistics for basic survey findings (Appendix C), a discussion of margins of error and the procedures for estimating the household population counts (Appendix D), assumptions regarding container size (Appendix E), a methodological note on gender effects (Appendix F), the Intergovernmental Solid Waste Disposal Association report on the September 13 collection event (Appendix G), survey results on collection event participants (Appendix H), the on-site questionnaire for the September 13 collection event participants (Appendix I), a summary listing of household hazardous waste collection programs nationwide (Appendix J), and a listing of tips on contractor selection and insurance (Appendix K).

1.5. Management and Funding of the Champaign County Campaign, Collection Event, and Surveys

The 55-day Champaign County HHM&W campaign beginning July 21, 1987, and the collection event on September 13 were sponsored and funded by the Intergovernmental Solid Waste Disposal Association of the City of Champaign, City of Urbana, and Champaign County. Funds were also provided by the Meredith Corporation of Des Moines, Iowa, publishers of Successful Farming magazine. Additional support through in-kind services and technical assistance were provided by HWRIC. Chief organizer of the campaign and collection was Sam Chandler, City of Champaign Solid Waste Management Coordinator.

Principal investigator for the July and October 1987 surveys was Dr. Roland Liebert of the Survey Research Laboratory (SRL) and the Department of Sociology at the University of Illinois at Urbana-Champaign. SRL's project coordinator for the surveys was Tobey Fumento. The surveys were funded by HWRIC. Claudia Washburn was HWRIC project officer. Supplementary funding from the Meredith Corporation via the City of Champaign made possible the inclusion of the farm sample.

CHAPTER 2

BACKGROUND: PREVIOUS HHM EDUCATIONAL CAMPAIGNS AND HHW COLLECTION EVENTS

An interpretive history summarizing previous HHM educational campaigns and HHW collection drives will provide useful information about actual experiences. Several issues about targeting prior efforts and measuring their success are developed as key problems to be addressed by communities that want to have an HHM&W program. The review also establishes a need for information about targeting and evaluation, which becomes a focal concern in the remainder of the report.

2.1. The Beginnings: Problems and Responses

Interest in public education campaigns and collection drives for HHM&W dates from 1981 with a pesticide collection in Lebanon, Kentucky, and from 1982 with the initial general HHM&W programs, first in Seattle, Washington (Galvin and Ridgley, 1982) and then in Lexington, Massachusetts (Dorian, 1986, pp. 6-4,5). Also in 1982, Albuquerque, New Mexico, conducted an HHW survey to lay the basis for a collection drive that faced funding delays until it took place in 1985. The principal actors in these initial efforts (excepting Lebanon, Kentucky) were keenly aware of their pathbreaking leadership, and they kept detailed records in the form of memos, correspondence, and assorted other documents that they then published as reports and distributed widely to other HHM&W program planners.

The beginning of HHM&W programs in 1982 had been long coming. Growing concern about the adverse environmental effects of all kinds of hazardous materials had by then come to include household materials such as home-use pesticides, herbicides, cleaning agents, automotive products, paints, paint strippers, and adhesives (Ecology Center of Ann Arbor, 1986). Although the best alternatives to environmentally harmful disposal of these materials were already understood as either proper use until depleted or substitution of nonhazardous products, it was also recognized that these options are not always possible or acceptable in many households.

A number of factors have contributed to the mounting recognition of an HHW disposal problem:

* Some previously marketed household products are now banned and should no longer be used (Dadd, 1987; Gosselin et al., 1984).

* The proper ways of storing or disposing of these banned materials, and even how to identify them, may not be known to many households (Zamm, 1980).

* It is perhaps more common that hazardous materials of all kinds accumulate in some homes, possibly creating dangers within the home unless some disposal method is found and used (Dorian, 1986).

* Many people are probably unaware of the hazards associated with various products (Zamm, 1980).

* Lacking adequate knowledge about hazardous products and about proper storage and disposal procedures, many households may unwittingly risk public health, safety, and environmental quality by dumping various quantities of these materials on the ground, in sewers, or in household trash destined for landfills (Dorian, 1986).

* Meanwhile, existing landfill sites are rapidly reaching capacity, new ones that can be made environmentally acceptable are ever harder to find, and concern mounts over ground-water contamination from previous, existing, and future sites (Hughes and Raymond, 1986; Bronstein, 1987; Kurtz, 1988).

* As a consequence, the desire to keep hazardous wastes, including HHW, out of landfills has grown (see, e.g., Golden Empire Health Planning Center, 1986).

* At the same time, concern with safety and health hazards in everyday life within the home and around the yard has also grown in the popular media (see, e.g., Zamm, 1980; Wallace, 1985; Dadd, 1987).

The principal public activity emerging to address these concerns is the community HHM&W educational campaign and collection drive. The goal of the collection drive is to "enlist homeowners' cooperation in taking HHW to collection centers, where the wastes are identified, packaged, and transported to permitted hazardous waste disposal facilities" (Dorian, 1986, p. 1-1). Typically, there is a one-day collection preceded by weeks or months of public education alerting people to hazards associated with HHM and to the forthcoming collection event.

This concept for conducting a campaign and drive was largely modeled on, and grew out of, earlier experiences with recycling drives. We may speak of a "drive" model, which is best characterized by what happens in a newspaper recycling drive. There is much publicity about why it is desirable to recycle newspapers, and how to do so, followed by a collection of newspapers on a given day. There are three basic versions of this drive model.

In February 1982 in Seattle, one of the nation's first and most sophisticated HHM&W programs was conducted. Committees of Seattle officials spent months developing their version of the drive model after an exhaustive *de novo* review of many potential program options, with extensive attention to recycling drives. They expanded the basic recycling drive model to place it within a very sophisticated package, giving heavy emphasis to a pre-collection educational component to promote long-term effects. They proposed to extend drop-off opportunities over several weeks, and they conducted pre- and post-collection surveys to evaluate effectiveness.

It was an extraordinary first effort, especially considering that the collection was limited to a single neighborhood and was forced by practicalities into a more limited time span than was originally desired. The dream has nonetheless endured and the reality has grown. Indicative of its commitment to a continuing effort and effect, Seattle has had an ongoing program since late 1982 and has built this program into a permanently staffed set of activities covering the entire metropolitan area with nearly continuous education and publicity along with annual collection events. West Coast admirers and imitators of Seattle's program have often adopted not just the core component of the collection drive but also Seattle's initial and continuing emphasis on promoting long-term and lifestyle-changing education and on providing many convenient opportunities for drop-off (Purin, 1984; San Diego Environmental Health Coalition, 1984). This is what may be called the West Coast version of the drive, which emphasizes long-term commitment. It employs images of fundamental change in lifestyle.

People in the eastern and central portions of the United States are more familiar with a second and much simpler version of the drive. This simpler version stresses the pragmatism and efficiency of a single or periodic collection event, using images of a "clean sweep" or of clearing out unwanted waste in a single swift action. There is little talk about changing lifestyles. Educational materials are used, including some that are attractively simple yet wide ranging (e.g., Massachusetts League of Women Voters, 1985a, 1985b), but the primary focus and principal strategy is simply to encourage people to bring HHW to a collection event.

This simplified second version of the drive model was first adapted to HHW in Lexington, Massachusetts, under League of Women Voters' sponsorship, on October 30, 1982 (Lexington LWV, 1983). Perhaps because this version is comparatively easy to promote, staff, and implement, and because it demonstrably addressed a need, it spread rapidly throughout the Northeast and ultimately to much of the rest of the country east of the Mississippi River. Its popularity gives the October 30, 1982, Lexington drive the reputation of being the first "true" HHW collection drive.

A third version of the drive concept was first developed and applied in Albuquerque, New Mexico (Gordon and Anglada, 1983; Albuquerque Environmental Health Department, 1986) and has subsequently been adopted more widely throughout the state of Florida (Florida Department of Environmental Regulation, 1986a, 1986b). This version begins with the West Coast emphasis on education and convenient (multi-site and/or multi-day) drop-off opportunities. One other goal was added to give these programs a unique character. They seek to enlist private sector cooperation in developing long-term hazardous waste management solutions for their regions.

This goal activates a wide array of waste disposal planning efforts beyond that of HHW collection: It puts government into a senior partner role in guiding the search for solutions, and it brings the private sector into the hazardous waste collection target zone. Albuquerque and Florida included "small quantity generators" or small businesses in their versions of the HHW collection drives. Variations on this version are no doubt being used in other communities throughout the United States, as in Champaign County where farmers were brought into the collection effort as part of a search for a countywide waste disposal strategy.

By 1986, the U.S. Environmental Protection Agency (EPA) estimated that 200 communities in half of the states were conducting drives that year (Dorian, 1986). In November 1986, the HHW activist behind the first Lexington drive, Dana Duxbury (1986), reported an up-to-date count of 530 collection programs that had been conducted in United States communities since 1981.

Despite the wide use of the Lexington version of the drive model, and despite the substantial reliance on it as a strategy for coping with HHW issues, there has been little careful evaluation of the model and of ways to maximize its long- and short-term impact. As a result, the drives have tended to be homespun imitations of each other, useful as action programs aimed at addressing a clear need but offering little basis for cumulative improvement in methods and efficacy (Unertl, 1986; Dorian, 1986). Yet, some generalizations about how well these drives work, and why they work as well as they do, can be extracted from the various reports on them.

2.2. Collection Events: Assessing Their Success or Impact

The impact of drives has, to date, been principally measured in two ways: by the number of households participating and by the quantities of materials collected. By the first of these measures, the drives invariably seem to have had very limited success, while the second measure generally gives the impression of much greater success.

Most drives have produced household participation ratios (participating households to total households in the community) of between 2:1,000 and 1:100, or between 0.2 and 1.0 percent (Dorian, 1986, p. 1-3). One community (the pacesetting Lexington, Massachusetts) is known to have attracted 4.4 percent of its households to a collection day (Smith, 1987). Even if we include Lexington's record as an indication of what can be done, the expected household participation rate seems small. One reason is that it is a percentage of all households, as if 100 percent communitywide participation is a meaningful point of reference. If, on the other hand, we assessed participant turnout as a percentage of those households that have hazardous materials available for disposal, we might find that rates of participation among this "available" population are considerably higher.

Richard Conlin, director of the 1987 Seattle area "HHW Round-Up" collection drive, has suggested that over half of the total population probably has no hazardous waste available and should therefore not be considered potential participants (Conlin, 1987, pp. 57-58). Conlin's rough figure was based on a post-"Round-Up" Seattle area survey, in which those who had heard of the "Round-Up" but did not participate were asked why they did not participate. Over half said that it was because they had nothing to dispose of. Although this is a crude and partial way of measuring what Conlin called "ineligibles," it is a useful first effort.

By the other major measure of a drive's impact, the quantity of materials collected, most previous drives seem to have had considerable success in collecting from around 2 to 16 gallons (or 16 to 128 pounds) per participant, with the lower numbers being generally based on actual quantities of waste material dropped off and the higher numbers being usually based on the quantity of packed and sealed 55-gallon barrels containing the dropped-off waste materials, the containers that they came in, and packing material (Dorian, 1986, p. 1-3).

2.3. Designing Drives to Maximize Collection Day Success or Impact

Participation and collection rates are probably also dependent on such factors as the length, intensity, breadth, and content of the pre-collection day campaign. Little is known about the effect of these factors.

In a U.S. EPA study, Dorian (1986, p. 6-2) compared two October 1985 drives, one in Albuquerque, New Mexico, and one in Fairfax County, Virginia. The report notes that "the Albuquerque program began with an extensive public education effort six months prior to the actual collection," while the Fairfax County collection followed a "limited" six-week campaign (p. 6-2). In a five-day collection, the Albuquerque program achieved an 0.8 percent participation rate among all households "in the area." Fairfax County, in a one-day event, had a 0.1 percent participation rate. Disregarding the differences in the number of collection days and focusing on the differences in the number of publicity days, Dorian concluded that where public education was limited, participation was low.

Although there may be some validity in Dorian's conclusion, specific evidence linking a given amount or duration of publicity to a resulting participation rate is lacking. Comparisons of many communities will probably be needed before this question is adequately answered.

In designing the pre-collection campaign, one important feature of sound planning is to target information to reach potential or desirable participants or those with available waste. Targeting involves identifying groups with the least knowledge about proper handling of HHM&W, or with the greatest quantities at risk of environmentally unsound disposal, and identifying as well the types of media that will most likely reach them. A pre-campaign household survey is one good way of getting valid information on these matters. It turns out, however, that pre-campaign surveys are rare, and those that have been conducted were focused more on assessing communitywide need than on identifying target groups.

For example, a pre-campaign survey conducted in Albuquerque in 1983 "revealed that there was a need for increased public education on the subject of HHW" (Gordon and Anglada, 1983, p. 24), and this in turn influenced the city council to fund the city's 1985 education campaign and collection drive (Albuquerque Environmental Health Department, 1986, p. 6). A 1983 pre-campaign survey in Seattle was used for a similar purpose (Galvin and Ridgley, 1982).

Surveys of collection day participants are also potentially useful in detecting which aspects of the pre-collection day campaign are effective in bringing out those who participate. There have been many of these on-site surveys (Dorian, 1986; Laderman et al., 1985; Unertl, 1986); indeed, because they are often used to obtain a record of the materials brought to the event, they seem to be nearly universal.

Based on an examination of the results from 10 on-site surveys for various first-time collection events across the nation, virtually all on-site surveys ask something about the basic demographic status of participants. It typically turns out that collection day participants are better educated, older, and more likely to own their own homes than one might expect about the general population.

On-site surveys have generally included questions about the importance of various media and other sources for informing participants about the collection drive. By far the most consistently important source is newspapers, especially articles, followed by radio and then pamphlets or flyers, with any other print or media source (especially television) typically being of little significance. Friends and co-workers, where listed, are often cited as sources among first-time participants.

There may be some difference between participants and nonparticipants in regard to their sources of information. In a recent post-event general household survey in metropolitan Seattle, where 94 percent of the sample claimed to be nonparticipants, the medium cited most frequently as a source for hearing about the collection event was television (Conlin, 1987). In other words, those who heard about it but did not participate got their information from television.

Another likely way to increase collection day participation is to hold drives on a recurring basis, perhaps annually. Subsequent drives tend to attract larger numbers of participating households (Laderman et al., 1985; Anglada, 1987; Galvin et al., 1982). In Connecticut, for example, Goldsmith (1987) estimated that participation generally at least doubles in a community's second drive.

In Florida, every county had one and only one drive, but the drives were timed to flow like a wave rolling across the state over many months. Participation rose the later the event was in the series (White, 1987). The Florida campaigns seemed to have a cumulative statewide effect, as the experience and publicity in counties with early collection events seemed to increase the interest and participation in neighboring counties with later collection events.

At least one study of recycling behavior (Ebreo and Vining, 1987) shows that participation has gradually increased over time. The authors found that the best explanation for participation is "intrinsic motivation" involving high positive values with respect to the environment. The widening of participation is apparently due to a widening of the circle of people adopting or expressing this intrinsic motivation. In short, a climate of favorable opinion regarding the recycling program and its environmental benefits appears to take root in an early core of participants and to radiate outward as it envelopes larger portions of the community. This pattern is fairly typical of what is found in the literature on innovation diffusion and mass communication (Rogers and Shoemaker, 1971; De Fleur and Larsen, 1987). It is too early to tell whether and at what level there is an upper limit on the spread of this climate of opinion and recycling participation.

In Lexington, Massachusetts, where there have been more annual communitywide drives (six) than anywhere else, the household participation rate has fluctuated (Table 1). There was a strong second-year rise, a trail-off in the third and fourth years, a sharp rise in the fifth year, and some trail-off in the sixth year. Because the increases have been steeper than the decreases, the net change has been upward.

Lexington's first-year low participation rate suggests that there is a startup period for establishing a collection program. The overall rise in Lexington's participation rates over time suggests that involvement spread broadly throughout the community only after repeated campaigns. If we had information about the character of the educational programs and the media sources and about other attributes of participants each year, the steep climbs in some years and dips in other years might be more fully explainable in terms of the diffusion of a climate of favorable opinion.

Table 1 also shows a fairly steady rise over the years in the quantity-per-household that was dropped off on collection day. Although 1987 seems to reverse this trend, it is a reversal that may be explained by the change in the way in which quantities were counted (see footnote to Table 1).

The fairly steady rise calls into question Dorian's (1986, p. 1-3) assumptions that first-year quantities are high because they "represent several years accumulation of wastes," and that subsequent-year quantities will therefore be lower. Instead, it may be that repeat participants simply have no acceptable alternative disposal option for material that they keep buying, while new participants add to the growth of the quantities collected. It may also be that participants drop off ever

TABLE 1. Participation and Collection Rates for Drives in Lexington, Massachusetts, 1982-1987

Year of Drive	Number of Participating Households	Percent of Lexington's Households	Gallons per Household
1982	93	1.0%	8.3
1983	213	2.4%	7.5
1984	164	1.8%	11.1
1985	137	1.5%	14.5
1986	400	4.4%	15.7
1987[a]	300	3.3%	12.3

Source: Smith (1987).

[a] The 1987 household participation and gallons counts are estimates. Prior to 1987, all quantity counts were based on partial or full containers, as received. In 1987, paints were combined so that only full gallons of paint were counted.

larger proportions of hazardous material that they have in storage with each passing year, responding in this way to an educational campaign that may seem to emphasize the hazards of having certain materials around the home.

Clearly, collection drives should not be envisioned as one-shot efforts that can substantially rid the community of HHW overnight. They should be designed with the anticipation that at least the first one will reach a predisposed few and that subsequent drives designed to reach less readily engaged targets will also be needed.

2.4. Designing Campaigns to Maximize Their Educational Impact

Recognizing that drives are not complete strategies for eliminating environmentally harmful disposal of HHW or unsafe handling of HHM, organizers of both the eastern and the western versions of collection drives have come to place greater emphasis on public education as the most important objective (e.g., Unertl, 1986; Dorian, 1986, p. 6-1). A fully developed educational program seeks to inform the public about

- which household materials are hazardous;

- potential environmental and safety impacts of improper use and disposal of HHM&W;
- proper ways to store, recycle, and dispose of HHM&W, including disposal by drop-off at a collection event; and
- less hazardous substitutes for HHM.

Enhanced public awareness and improved practices around the home are the desired outcomes.

Virtually all drives have lacked a way of assessing effectiveness in attaining this broader educational goal. It is common to assume success, as in the U.S. EPA's statement that "collection programs increase public's awareness of HHW in homes and encourage safer use and proper disposal" (Dorian, 1986, p. 1-1). The extent to which this indeed happens is unknown, nor is it known which features of the educational program are most effective (or ineffective). Some have even suggested (e.g., Ridgley, 1987a) that certain educational efforts may be counterproductive, scaring people into throwing more HHM into the waste stream in order to remove the hazard from their homes. Answering these questions requires surveys of the general public both before and after an educational and collection program.

Only three sets of before/after surveys have been identified. Two of these sets were done in Seattle, the first occurring before and after a collection day in 1982 (Galvin et al., 1982) and the second occurring before and after a collection day in 1987 (Conlin, 1987). The third before/after set of surveys was done in 1985-86 in Minnesota under the guidance of a former Seattle HHW program coordinator (Ridgley, 1987a).

The 1982 Seattle surveys were quite brief. They were most notable for finding that a far greater percentage of the population expressed interest in participating in the collection (88 percent) than actually did participate (0.4 percent). The post-collection survey also found that the principal reason for interested people not participating was that they did not know that there was a drive (23 percent), followed by "have no toxic/hazardous substances" (21 percent). As noted earlier, the 1987 Seattle post-collection survey found that most (57 percent) of the nonparticipants said that they did not participate because they had no HHW to drop off.

In the 1982 Seattle pre-collection survey, most homes were found to contain some of each of several major types of HHM (pesticides, herbicides, paints or thinners, household cleaners, drain openers). The most common pre-collection disposal method was to "throw in the trash," although most (64-100 percent depending on type of HHM) did not dispose of the material by any method and only 28 percent disposed of any of the listed 10 products during the previous year. In the post-collection survey, 18 percent said that they had some hazardous items that they wanted to get rid of.

There were some limitations in the 1982 Seattle surveys. Most importantly, there was no assessment of change in awareness or behavior as a result of the collection drive. Although the survey design was adequate in most of the important respects, there were no HHM&W questions repeated in both surveys to permit comparison.

The 1987 set of Seattle surveys were more extensive and did seek to assess change in awareness but not in behavior (Conlin, 1987). Regarding change in awareness, this survey found that examples of HHM "around their home" could be named by about 7 percent more of the public after the two-month educational campaign than before the campaign. This was a change from 32 percent saying in March 1987 that they could not think of any HHM "around their home" to 25 percent so reporting in June 1987. If, as it appears, the sample size was 300 in each survey, and if the procedures for the two surveys were scientifically sound and comparable, the 7 percent change has less than a 3 three percent chance of being due to sampling error. It is, in other words, a significant change. Some of this change could be attributable to the time of year if, between the March and June surveys, people acquired more HHM for spring cleanups, car servicing, and yard work.

One other measure of change in awareness was reported by Conlin (1987) for the 1987 Seattle surveys. The percentage of people who could name types of HHM that should not be thrown into the trash or poured down the drain because of possible harm to the environment increased from 66 percent in March to 82 percent in June, a change of 16 percentage points. Under the previous assumptions about survey design, this has less than a 1 percent probability of being due to chance alone. It seems that the 1987 Seattle educational campaign had some effect in getting more people to realize the hazards to the environment of improper disposal.

The third "before/after" survey (Ridgley, 1987a; Armson, 1986) was done in the city of Winona, Minnesota. The "before" survey of 353 households was done in the fall of 1985 (mostly in November), and the "after" survey of 399 households was done in the spring of 1986 (mostly in March or April).

In answer to a question on HHW awareness that appeared in both surveys ("Have you ever heard anything before about household hazardous waste?"), those saying "yes" increased from 49 to 60 percent. Assuming adequate sampling and survey procedures, there is less than a 5 percent probability of this difference occurring by chance alone. This, then, was a significant change toward more awareness.

Interestingly, the before and after surveys did not differ with regard to sources of information about HHW. Newspaper articles remained the most common source, with 31 percent of the "before" sample and 34 percent of the "after" sample citing them. Virtually tied for second place was radio (12 percent before, 15 percent after) and TV (15 percent before, 14 percent after). Brochures, posters, flyers, friends, and local organizations each had 6 percent or less citing them in both surveys. In short, although the educational campaign may have had an effect in increasing awareness, no particular information source emerges as a probable cause of that effect.

In a question about specific knowledge, Winona residents were asked what sort of products they think of when they hear the term "hazardous household waste." Surprisingly, given the increased awareness about HHW in general, there was an increase over time (from 2 percent in fall 1985 to 17 percent in spring 1986) in the percentage who could not identify a single product as an example of HHW. This change toward fewer people having specific knowledge about HHW is not at all likely to be due to chance. It is difficult to see how the educational campaign could have caused this decline in specific knowledge, unless it convinced some people to be more cautious about their layman's assumptions about what is hazardous. The Minnesota reports did not discuss this point (Armson, 1986; Ridgley, 1987a).

The first question on both Winona surveys was an attitude question about the importance of "the problem of HHW" relative to other environmental, safety, and health issues in Minnesota. There was some minor fluctuation but no significant overall change in the percentage saying that the HHW problem was either "the most important" or "one of the most important" problems (63 percent in fall and 69 percent in spring). The educational campaign did not significantly raise the priority that people give to the HHW problem.

The Winona study also attempted to assess the impact of the campaign on behavior. Specifically, they were asked what they do with their "old paint thinner," their "used motor oil," and their "old pesticides." Findings were mixed. On the one hand, the percentage saying that they put them in the garbage significantly declined for thinners (down from 26 percent to 15 percent) and for motor oil (down from 20 percent to 11 percent) but not for pesticides (down from 32 percent to 28 percent).

The decline in the disposal of paint thinner by putting it in the garbage was perhaps partly due to the increase in the proportion of respondents who said that they "never have any" (up from 42 percent in fall to 56 percent in spring). The percentage saying that they never had any used motor oil or old pesticides also went up, but by insignificant amounts. Perhaps the educational campaign was convincing some households not to have certain products around any longer.

The 9 percentage point decline in disposal of motor oil in the garbage was offset by insignificant increases in the percentage who poured it down the drain (up from 1 percent to 3 percent) and dumped it in the backyard (up from 7 percent to 10 percent). This means that the percentage who improperly disposed of motor oil, by whatever method, remained essentially unchanged. The percentage who recycled any of these products also remained essentially unchanged.

The pioneering Seattle and Winona surveys suggest that at least a few pre-collection campaigns have had some educational impact. The impact appears to be limited and mixed rather than extensive and consistent. These surveys are, however, themselves too limited to provide a basis for firm generalizations. They typically used, for example, very broad survey questions that were rarely specific to particular types of HHM&W and that were usually asked of every respondent, including those who do not possess, use, or dispose of various types of HHM&W. This limitation creates problems of accurate reporting. These surveys were also surprisingly deficient in asking about public policy issues. The Seattle and Winona surveys are nonetheless useful in suggesting issues about the types of educational effects needing more exacting study.

2.5. Summary

Community HHM&W educational and collection programs have emerged and rapidly diffused since 1982 in response to mounting public concern about hazardous wastes around the home and in the environment. Most programs, especially in the eastern and central portions of the United States, focus on what have become one-day annual collection drives. Some programs, especially on the West Coast, give greater attention to educational efforts to reduce household use of hazardous material or to minimize risks associated with use, storage, and disposal of them.

Collection events continue to be the cornerstone and highlight of virtually all HHM&W programs. Their success is typically indexed by the proportion of households that participate (usually not more than 1 percent) and by the quantity of material collected (usually a net volume of 2-8 gallons of actual dropped-off waste material per participant, or a gross haul-away volume of 4-16 gallons of waste material, containers, and packing per participant). These indices of success would take substantially higher values, showing greater impact, if they were based only on those households in the community that have some HHM stashed away awaiting disposal or if they were based on the quantities of materials awaiting disposal. Another measure of success would be an assessment of the quantity of HHM brought to the collection event that would otherwise be disposed of inappropriately.

Collection drives involve promotion and education to attract participation. Little is known about the kinds of promotional and educational efforts that result in high participation for these kinds of events. Surveys to date indicate that first-year participants tend to be relatively better educated, older homeowners who have some awareness of the HHW problem and who heard about the event from newspapers or radio. No data were found on subsequent-year participants. Since participation tends to grow over time, it is inferred that subsequent-year participants are drawn more broadly from the community. There is a need for finding out what distinguishes early participants from later participants.

Educational campaigns have become an increasingly important feature of HHM&W programs. They try to improve year-round household handling and disposal of HHM&W, to build interest in alternatives to HHM, and to attract targeted elements of the public to collection events. Educational campaigns of this sort have rarely been evaluated. Such evaluations as do exist indicate that campaigns have mixed or partial success.

Although one evaluation found increased awareness of hazards associated with HHW and another found increased awareness of HHW in general, there was also a finding that specific knowledge about types of HHW declined. One evaluation found that disposal of some types of HHW in the garbage declined.

To evaluate the effect of educational campaigns, there must be pre-campaign data and comparable post-campaign data on what households are doing and thinking with regard to HHM&W. To provide such an evaluation was the main purpose of the before and after surveys described in this report.

We turn next to review the operation of the September 13 Champaign County collection day, particularly with regard to what we found out about the number and type of participants, the quantity of material dropped off, and the success of the event in these terms. Then we review the before/after survey findings to assess the broader impact of the collection event and the remaining need for a continuing HHW collection program.

CHAPTER 3

THE SEPTEMBER 13 CHAMPAIGN COUNTY COLLECTION EVENT

The Household and Farm Hazardous Waste Collection Day in Champaign County was September 13, 1987. This chapter briefly reviews the preparation for the event and presents the results of an on-site survey of those who brought materials to drop off.

3.1. Scheduling, Site Selection, and Site Logistics

The decision in late June 1987 to include farms in the collection drive meant that the collection date had to occur at a time when farmers would be free to participate. A mid-September date was chosen to avoid conflict with farm harvests and early winter inclement weather. Were it not for these considerations, the collection date would have occurred in mid-October in order to allow more time for publicity and an educational campaign. The collection date was scheduled for a Sunday to avoid conflict with University of Illinois football games in September and to permit full utilization of the Champaign City Public Works facility for collection.

The criteria for site selection included having a site that was structured to permit easy control of traffic flow, with multiple drop-off stations for both hazardous and nonhazardous materials. For additional tips on site selection and preparation, see Appendix K. A map of the layout and traffic flow plan for the collection site is presented as Figure 1. Arriving vehicles first had contact with police and traffic control volunteers from the nearby Chanute Air Force Base, who checked for explosives that should be removed and diverted before the vehicle proceeded. Next the arriving vehicles encountered the survey researchers, who provided each vehicle with a copy of the questionnaire on a clipboard with a pencil. There was invariably plenty of time to fill out the questionnaire. Trained interviewers from the Survey Research Laboratory, with volunteer assistance, distributed and collected the questionnaires. They also distributed educational materials on HHM&W.

The questionnaire proved not to be useful in pre-screening for types of materials brought to the site. Instead, volunteer pre-screeners at the point marked "entrance" and at the "pre-screen" station checked for recyclable oil, latex paint, or plain trash, each of which was diverted to its place before the vehicle entered the building for drop-off of hazardous materials. The pre-screen station also packaged and marked any dioxins, which could not be legally disposed of under

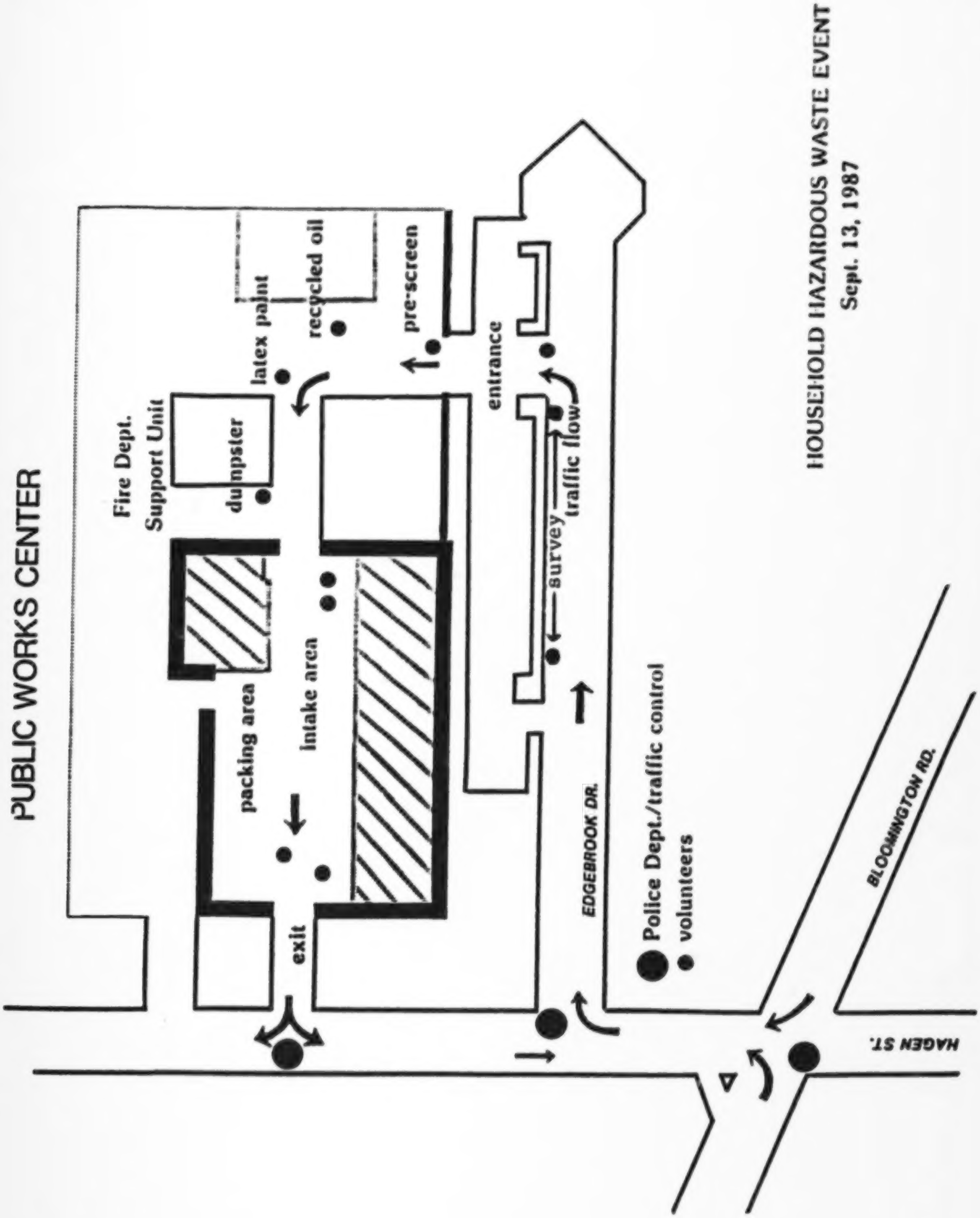
HOUSEHOLD HAZARDOUS WASTE EVENT
Sept. 13, 1987
PUBLIC WORKS CENTER
Fire Dept. Support Unit
dumpster
latex paint
recycled oil
pre-screen
entrance
packing area
intake area
exit
survey
traffic flow
EDGEBROOK DR.
Police Dept./traffic control
volunteers
BLOOMINGTON RD.
HAGEN ST.

FIGURE 1. Layout and Traffic Flow Plan for the Collection Site

current guidelines and which were returned to the participant with written instructions on storage until disposal procedures are developed and announced. This last pre-screening was conducted by an employee of GSX, Inc., of Greenbriar, Tennessee, the contractor responsible for all handling, packing, and disposal of the hazardous waste.

Inside the spacious public works building motor pool area, representatives from GSX, Inc., and several volunteers, dressed in head-to-foot protective clothing, removed the materials from the vehicles and placed them in a large, generally undifferentiated collection. At the exit to the building, a volunteer distributed educational materials and related HHM&W items. Along the entire route, there were several volunteers available to direct traffic and answer questions. Subsequent to the collection event, GSX employees spent several days sorting and packaging the materials.

The collection intake, scheduled to run from 8:00 a.m. to 5:00 p.m., was closed at 1:30 p.m. when enough material had already been received to fill both the initial supply of barrels and an additional supply acquired during the noon hour.

3.2. Intergovernmental Cooperation in Planning a Collection Event

Among the management issues involved in planning a collection event, one of the first to be addressed is securing the cooperation of relevant local governments. Especially important are the agencies responsible for trash disposal; the health department and any agencies concerned with environmental questions; the schools, to facilitate publicity or public education; the police or sheriff's department, to assist in traffic control; the fire department, to help control hazards at the collection site; and any comparable state agencies.

The Champaign County collection event had some of the necessary cooperation from the start because the event was sponsored and managed by the Intergovernmental Solid Waste Disposal Association of the City of Champaign, City of Urbana, and Champaign County. There was also extensive cooperation with the Champaign County Farm Bureau and the League of Women Voters of Champaign County in both publicity and recruiting volunteers for the event. The schools and other civic groups were, for the most part, not involved in the Champaign County event.

3.3. Materials Collected: Disposal Contractor's Report

The contract between the City of Champaign and GSX specified that the hazardous materials be left in the containers in which they arrived. These containers were sorted by broad categories and placed in 55-gallon barrels, along with enough vermiculite packing material to eliminate any possibility of contact between the containers in the barrel.

The total amount of material collected, along with the packing material, filled 188 barrels and weighed 33,656 pounds. The disposal methods that were utilized in the program included sending 136 barrels to a secure landfill (probably in Tennessee or South Carolina), disposing of 50 barrels by incineration, and using aqueous treatment or sewer disposal for 2 barrels.

A report from the Intergovernmental Solid Waste Disposal Association incorporating information from GSX, Inc., is included as Appendix G. This report reviews costs and funding, procedures for collection, and GSX's assessment of the packed weight of the various categories of materials collected.

3.4. Publicity and Educational Materials

The collection event was preceded by six to eight weeks of publicity and limited public education regarding household and farm hazardous wastes. The publicity was less than optimal. There were very few press releases and radio and television appearances. Although flyers announcing the event were mailed to most Champaign-Urbana households and 4" x 7" announcements were placed on single-family home doorhandles, these activities occurred late in the publicity campaign and were not augmented with house-to-house distribution of educational materials. There were no seminars with the public, no educational efforts in the schools, and no plan or program to reach the community's civic organizations with educational materials. A total of $10,000 was budgeted for advertising and publicity by the Intergovernmental Solid Waste Disposal Association. An additional but undetermined amount was also spent on educational materials by the Hazardous Waste Research and Information Center.

A list of publicity activities between July 24, 1987, and the September 13th collection event is given below, divided into four parts for the four major organizations acting as agents of publicity for the collection event.

Hazardous Waste Research and Information Center:

- HWRIC sent out a press release in mid-August to all Champaign County media.
- Public Information Officer Christina Komadina and Industrial Assistance Engineer Dan Kraybill appeared on a 45-minute Focus 580 (WILL) radio program aired at 10:00 a.m. on September 1, 1987.
- Assistant Director Gary Miller appeared in early September on WICD-TV's "News Roundtable" for a show on hazardous waste. He mentioned the collection drive during that program.
- HWRIC and the League of Women Voters of Champaign County placed an ad announcing the collection drive in the Champaign-Urbana News-Gazette. The ad appeared on September 12, 1987.

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- Flyers were distributed at the Illinois State Fair in early August listing informational materials available from HWRIC on household hazardous waste.

Cities of Champaign and Urbana:

- Flyers giving the collection date and other information were mailed on or about September 1 to 16,000 Champaign-Urbana single-family households. This mailing was done under contract with a private firm that specializes in mailing advertisements. Composition of their list of households was not made known.

- City employees distributed doorhangers during September 1-12 to most Champaign-Urbana single-family households.

- On September 1, a billboard advertising the collection event was set up on a busy street near downtown Champaign.

- Sam Chandler made several media appearances including

  (a) WDWS's "Penny for Your Thoughts" radio talk show at 10:00-11:00 a.m. on July 21, 1987

  (b) WLRW radio talk show in the first week of August

  (c) WICD's "Today on the Farm" on September 7, 1987

- Sam Chandler also gave a talk to the Rotary Club West and to AMBUCS in early September.

- There was a display at Marketplace Mall during two weeks in August. The display was sponsored by the Community Recycling Center and had information on the collection event.

- 50 U.S. EPA household hazardous waste posters were reprinted to include information about the program and were placed on city buildings in Champaign-Urbana.

Successful Farming Magazine:

- Sent out two versions of a press release. The first press release was sent to Champaign County media. The second press release, which contained more detailed information about the collection, was released to media statewide shortly before the collection event.

- Sent out letters from the Successful Farming editor to 1,200 Champaign area subscribers telling them about the collection.

- Publisher Jim Cornick wrote a letter that was sent to major chemical corporations and agricultural organizations soliciting their support for the program.

- An AP wire story appeared in the Grand Rapids Press (in Michigan), Belleville News-Democrat, Kankakee Illinois Journal, Lafayette Journal and Courier, Freeport Journal Standard, Jacksonville Journal Courier, and Mt. Vernon Register News.

Champaign County Farm Bureau:

- An article about the collection event appeared in the Farm Bureau's September newsletter. The newsletter is distributed to all of the Farm Bureau's approximately 6,700 members.
- Dennis Riggs, who is in charge of publicity for the Bureau, wrote a column about the collection that appeared in four weekly papers during the three weeks prior to the event: Rantoul Press, Mahomet Citizen, South Champaign County Today (in Villa Grove), and County Star (in Tolono).
- The Farm Bureau had a booth at the County Fair in late July where they passed out cards with information on the collection. (These cards were supplied by Sam Chandler.)
- During August and early September, the collection was promoted on the Farm Bureau's weekly radio program that airs on WIAI in Danville and WPXN in Paxton.
- Dennis Riggs did a news interview with WDWS radio prior to the collection.

The publicity was truncated by the decision to move the collection date up from the original mid-October date to the September 13 date. The original plan for an educational campaign was also largely abandoned when it was realized that there was not enough time to assemble adequate staffing and to develop and distribute educational materials. Instead of a massive educational effort, educational content remained largely incidental to the publicity regarding the collection event itself.

The print materials resulting from the publicity (e.g., newspaper articles, editorials, flyer, doorhanger, posters) are reprinted here in Appendix A in chronological order of distribution or publication in Champaign County. It is interesting to note that the post-collection day print publicity was as great, if not greater, than the pre-collection day print publicity. It appears that one important consequence of the collection event was to introduce household hazardous waste into public discourse in the print media.

3.5. The On-Site Survey

Every vehicle arriving at the drop-off site completed all or most of the survey questionnaire. A copy of that questionnaire is provided in Appendix I.

As part of a handout in an oral interim report to the Intergovernmental Solid Waste Disposal Association, frequency tables were prepared for responses to all of the questions on the on-site questionnaire. Some of these tables provide separate listings for households and farms. The tables are reprinted here in Appendix H, and the highlights are summarized below in Section 3.6.

The main content of the on-site tables comes from the survey of participants. Some of the tables also contain comparisons with the July 1987 general population survey of farm households in Champaign County and of urban households in Champaign, Urbana, and their urbanized fringe (CUF). This survey conducted prior to the collection event and discussed in Chapters 4 through 8, assessed how much household hazardous material was in the community, what was being done with it, and what the population thought should be done about it. Some key findings from those chapters are brought into notes to the on-site tables in Appendix H so that we can see how the collection day participants differ from the general population.

One main set of differences concern the quantities dropped off by participants in comparison with the quantities that the general population has inappropriately disposed of or has available awaiting disposal. Data from the July 1987 survey indicated that CUF households had improperly disposed of approximately 45,500 containers of hazardous waste during the previous 12 months and that Champaign County farmers had improperly disposed of about 660 containers of hazardous waste during the same period. This means that the 3,338 containers brought to the collection drop-off on September 13 were about 7 percent of the quantity annually improperly disposed of by farmers and CUF residents.

It appears from Table H.3 that up to two-thirds of these 3,338 containers were taken from storage rather than diverted from improper disposal. The actual diversion from improper disposal as a direct result of the collection event was apparently no more than 1,608 containers (sum of rows a, b, c, and d in Table H.3), or 48 percent of what was dropped off, or 3.5 percent of what is annually improperly disposed of by CUF and farm households.

Finally, the July survey determined that there were an estimated 3,300 households in CUF with containers of hazardous waste that they wanted to get rid of, while there were about 333 farms with unwanted hazardous waste that included pesticides, herbicides, petroleum products. The 262 households that brought hazardous waste to the drop-off were only 7.9 percent of the total estimated 3,300 CUF households that in July had hazardous waste that they wanted to get rid of. The 94 farms that brought hazardous waste to the drop-off were 28.2 percent of the total estimated 333 farms in the county that had hazardous materials in July that they wanted to get rid of.

The nearly 8 percent participation rate among "eligible" CUF households (i.e., among those with HHW that they wanted to get rid of) and the 28 percent participation rate among "eligible" farmers were far short of total participation or saturation. Yet, put in proper perspective, these are impressive participation rates for the first-ever event in a region of the nation never before having an HHW collection.

Moreover, given the less-than-optimal publicity in the cities and minimal educational efforts anywhere, the turnout was all the more remarkable.

By assessing participation with a rate based on eligible households, we also avoid the unchallenged and grossly misleading assumption that every household can and should participate in these events. We further avoid the distressing conclusion that follows from such a misleading assumption, namely, that only about 1 percent or less of the households participate. Instead, we find that a first-time modest publicity campaign in an urban setting can result in turning out almost 1 of every 12 eligible households and that a more aggressive publicity campaign among an attentive farmer population can achieve a turnout of fully 2 of every 7 eligible farmers. This is a very substantial starting point for future growth of an HHW diversion program.

Although there are obviously significant portions of the "eligible" or potential population of participants who actually participated, most of the potential population remains to be reached and to have its stored but unwanted hazardous waste collected for proper disposal. In addition, there are those households and farms--nearly equal in number to the ones with unwanted but stored hazardous waste--that have been inappropriately disposing of some hazardous materials over the previous year. Except for the overlap of about one out of three between those who store and those who inappropriately dispose of unwanted hazardous waste, the latter remain largely untouched by a collection event such as the one on September 13.

In table notes reporting percentages from the July survey, the margin of error for Champaign/Urbana is no greater than 4 percentage points (95 percent confidence level); for farms it is no greater than 10 percentage points. In table notes based on the July survey that report counts of materials discarded or in storage, the counts are point estimates that also have a sampling error associated with them.

There is no sampling error associated with the on-site survey, since it is a complete count of all who participated on Sunday, September 13, 1987. Those who were turned away after the collection intake was closed at around 1:30 p.m. were not surveyed.

3.6. Survey Highlights

In the following list of highlights from the on-site survey findings, the tables mentioned in parentheses are found in Appendix H.

* A total of 262 households and 94 farm operations provided hazardous material collected at the September 13 collection event (Table H.1).

* A total of 3,338 partial or full containers of materials were dropped off, of which over one-third (1,146) were pesticides or herbicides (Table H.2).

* If they hadn't used the drop-off collection service, 84 households and farms with 1,232 containers of hazardous material would have put some of this material in the garbage can, and 169 households with 2,256 containers would have continued storing some of it (Table H.3).

* The 3,338 containers of hazardous waste dropped off were only about 7 percent of the total number that CUF households and Champaign County farmers inappropriately disposed of during the previous 12 months (notes to Table H.3).

* Households dropped off only about 10 percent of the hazardous waste that the July survey indicated that CUF residents wanted to get rid of. Farmers dropped off 21 percent of what the July survey said farmers had available and wanted to get rid of.

* Slightly over one-half of the participants (52 percent) had heard about the collection day from a brochure or flyer, and nearly half (49 percent) had read about it in a newspaper (Table H.4).

* The average distance traveled one way to bring material to the collection site was just under seven miles (Table H.5).

* Over one-half of the participants (56 percent) reported that they have a need for a collection service for hazardous waste once every year (Table H.6).

* A majority of participants (63 percent) thought that the city or county should establish a collection program for hazardous household waste with a temporary collection site like the one used on September 13 (Table H.7).

* Nearly half of the participants (47 percent) reported that they recycle all of their cans, bottles, and newspapers (Table H.8).

* Just under 94 percent indicated that protection of the quality of the local environment in Champaign County was very important to them (Table H.9).

* Over 90 percent reported that they usually vote in local elections (Table H.10).

* The average household size was 2.6 persons (Table H.11), and nearly 95 percent indicated that they live in single-family houses (Table H.12).

* Almost half of the participants (46 percent) had attended graduate school (Table H.13).

* The average age of participants was 52.3 years old (Table H.14).

* In over 44 percent of the participating households, the head was in a professional or managerial occupation; 18 percent were active or retired farmers (Table H.15).

* The average length of residence in Champaign County was 31.4 years (Table H.17).

* Participants came from every township in the county except Newcomb and Sadorus, and from nearly every residential area of Champaign/Urbana (Table H.18 and Figures H.1 and H.2).

* Most comments were positive, and there were several suggestions. Examples of participants' comments are presented after Table H.19.

3.7. Overall Costs, Contracting for a Hauler or Disposer, and Insurance in Previous Collection Drives throughout the Nation

Appendix J provides a listing of examples of collection costs and hauler (or "disposer") for a number of previous collection drives throughout the United States. Also in this listing is an indication of the total waste collected and number of participants in each drive.

Insurance and liability are major concerns of people planning a collection drive. In Champaign, on-site insurance was already available under the existing coverage held by the City of Champaign for its Department of Public Works facility. Some of the best information on insurance and liability issues and experiences can be found in The Operations Manual by Susan Ridgley (1987), available from the Minnesota Pollution Control Agency, Hazardous Waste Division, 520 Lafayette Road, St. Paul, Minnesota 55155, (612) 297-1786.

A listing of tips on contractor selection and insurance is provided in Appendix K of this report. For further information on arrangements for proper disposal of household or other hazardous waste, insurance for collection events, and other "how to" information, contact Christina Komandina, Public Information Officer, Hazardous Waste Research and Information Center, 1808 Woodfield Drive, Savoy, Illinois 61874, (217) 333-8956.

3.8. Summary and Discussion

The materials that the participants dropped off were very diverse and were unexpectedly great in volume. Yet, these materials barely began to make a dent in the problem. The materials dropped off were only a small portion of the household and farm hazardous waste that is in storage awaiting disposal in the community and only a small portion of the household and farm hazardous materials that are annually disposed of inappropriately.

Among participants, farmers were substantially better represented than were urban residents. Although the participants were widely drawn from the general population, they were disproportionately older, long-time residents and were better educated, of higher socioeconomic status, and more involved in the community and in recycling than was the general population as a whole.

An involved, aware, and aging segment of the community found and made use of the Collection Day option for disposing of its household and farm hazardous waste. The challenge from this point on is to reach the younger households, the less informed or less aware, those less well integrated into community life, and those who, for whatever other reasons, are not particularly predisposed to participate in a hazardous waste diversion program.

A greater challenge is to find a way to reach everyone with information about how to minimize hazardous waste. In order to collect the amount of hazardous waste that Champaign/Urbana households and Champaign County farms inappropriately dispose of in a year, a collection event would have to take in a quantity roughly 14 times greater than that taken in on September 13. A more cost-effective route might be a public education program regarding waste minimization.

CHAPTER 4

THE JULY AND OCTOBER SURVEY METHODS

This chapter reviews the design of the July and October 1987 general household surveys conducted by the Survey Research Laboratory (SRL), including data collection procedures and response rates. Margins of error and methods for estimating population counts are illustrated with examples and are discussed more fully in Appendix D.

4.1. Survey Design

SRL designed the July and October surveys to include random samples of households in Champaign/Urbana (including their urbanized fringe) and in Decatur. A Champaign County farm household sample was randomly selected from a more narrowly defined population. Data collection was by telephone interview. The questionnaire was designed to be used with all three samples and, except for minor changes, in both the pre-campaign and the post-campaign surveys.

4.1.1. The Questionnaires

In addition to the specific objectives outlined in Section 1.3, a number of design criteria guided the selection of questions:

* Questions that measured awareness were placed ahead of questions that increased respondents' awareness.

* Wherever possible, measures of behavior rather than measures of attitudes, opinions, or inclinations were chosen.

* Opinion questions about policy issues were stated with reference to concrete choices or behavior.

* Within the time limits of the survey, there was maximum attention to detail about specific types of HHM&W.

* In asking about HHM&W, question-skipping procedures were used as needed in order to avoid asking people how they deal with materials that they do not have.

* The October questionnaire was to be substantially identical to the July questionnaire.

The July and October questionnaires were developed in close cooperation with research and information staff members at HWRIC. Planners of the Champaign County publicity campaign and collection event were also consulted. Copies of the final questionnaires appear in Appendix B.

4.1.2. The Champaign/Urbana Sample

The sample size for Champaign/Urbana and its immediate urbanized fringe (CUF) was determined so as to permit a margin of error (see Section D.1 of Appendix D) of no more than plus or minus 6 percentage points for analyses done separately on the smaller of the cities, Urbana, using a 95 percent confidence interval. Put another way, we wanted to be sure that 95 percent of the sample percentages reported for the smaller city would be accurate within 6 percentage points of the true population percentage. Since precision depends on sample size, there would be even greater accuracy (less margin of error) for percentages reported for the larger city and still greater accuracy for the CUF sample as a whole. This criterion required a sample size for CUF of about 700.

A word about the immediate urbanized fringe is in order. For these surveys, it is defined as the area serviced by telephone exchanges that are also used within the cities of Champaign and Urbana. This fringe area ordinarily extends no more than three miles beyond any part of the cities' boundaries. There is no U.S. Census category for the fringe defined in this way. The definition was chosen for convenience in conducting the telephone sampling and interviewing and because this readily telephone-accessible urbanized fringe may be viewed as part of the Champaign/Urbana community.

Sampling for CUF was done by telephone directory-based random digit dialing. This method involves taking a random sample from the residential listings in the telephone directory and then changing the last two digits to random numbers. The procedure allows inclusion of unlisted and newly assigned numbers, while minimizing the inclusion of unassigned telephone numbers. Nonresidences, motels, and nursing homes reached by this method were screened out. University dormitories were excluded, but other group housing was included. CUF households with no telephone, estimated to be less than 3 percent of all CUF households, were also excluded.

4.1.3. The Decatur Sample

Decatur was included in the surveys as a comparison community. If the change in a campaign-treated community (Champaign/Urbana) is no greater than the change in a non-campaign community (Decatur), it is best not to claim an impact for the campaign. Patterns of usage and disposal of HHM&W in Decatur are also interesting in their own right as examples of what happens in another community in Illinois.

The sample size for Decatur was kept as small as possible but large enough to permit margins of error of no more than plus or minus 8 percentage points. These criteria yielded a desired sample size of around 150. Once again, the sampling method was telephone directory-based random digit dialing.

4.1.4. The Champaign County Farmer Sample

Before beginning the pre-campaign data collection in July 1987, the organizers of the campaign/drive received funding from the Meredith Corporation to support the collection of farmers' hazardous waste. A portion of that funding was used to augment the survey samples to include Champaign County farmers. There was insufficient time and funds to use random digit dialing of rural areas and screen for farmers. Instead, the Champaign County Farm Bureau made available a current (as of June 1987) list of telephone numbers of all of its members who claimed "farming" as a source of at least $2,500 annual income. Of the 1,270 numbers on the list, a random sample was drawn of sufficient size to permit completion of 150 interviews.

During the interviewing for the July survey, we found that 36.8 percent of the Farm Bureau sample consisted of non-farming members who had "farm income" from rents, retirement investments, or other conversions of prior farm assets. This non-farming portion was dropped from the sample, leaving a final July sample size of 98 farmers. The October farm sample was screened at the beginning of each interview attempt so as to yield a final sample of 150 active farmers.

The Farm Bureau list does not include all 1,792 or so farmer households in the county (see Section D.3.3 of Appendix D). Generalization from our farmer sample can be made only to the population of Champaign County Farm Bureau members who claimed at least $2,500 annual farming income and who were actually farming. If this sample differs from the population of all active Champaign County farmers, it would be due to underrepresentation of low- or no-income farmers and/or to a difference between Champaign County farmers who are Farm Bureau members and those who are not.

4.2. Data Collection

4.2.1. Interviewing

The pre-campaign survey interviewing began July 5, 1987, and was completed on July 26, 1987. A small amount of publicity preceded the interviewing. Most notably, on June 1, 1987, the publicity campaign and collection event were first announced in a local newspaper article (Champaign-Urbana News-Gazette, p. 3, lead article; see Appendix A). After this article, there was no campaign activity until July 21, when representatives from the Farm Bureau placed hazardous waste collection sign-up cards at their tent at the Champaign County Fair, where the cards continued to be available until the end of the fair on July 25.

Also on July 21, one Farm Bureau representative and the director of the Champaign County educational campaign and collection event appeared on WDWS radio to discuss the forthcoming collection event. There were no other campaign activities through July 26 except word-of-mouth discussions or meetings among campaign planners, funders, and involved volunteers or activists.

In light of the July 21 Farm Bureau activity, it was decided to identify by special code all July survey interviews taking place that day and later. For both Champaign County samples (farmers and city residents), approximately 25 percent in the pre-campaign survey were interviewed on or after July 21. A comparison of these 25 percent with the 75 percent interviewed before July 21 indicated no statistically significant difference (at the 95 percent confidence level) on key variables regarding awareness of HHW&M or of the collection program. This was true for both the city and farm samples.

From July 26, 1987, through the collection event on September 13, there was an energetic but truncated publicity and quasi-educational campaign. A brief discussion of this effort and a full list of publicity efforts is presented in Chapter 3. Reprints of print materials appearing during the campaign are included in Appendix A.

The post-campaign survey was deferred for two weeks after the September 13 collection event in order to allow the post-event news reporting to run its course. Interviewing for the October survey began September 27 and was completed October 11, 1987.

Interviewers asked for the head of the household but talked to any other available adult if the head was not available. An effort was made to distribute the interviews between evenings and the rest of the day in a way that ensured an acceptable balance of male to female heads of households or their available substitutes. It was not known whether or how gender of respondent might affect results, so the goal was simply to maintain a large enough group of each gender to allow us to explore any possible gender effects. The final July samples were 56.2 percent female and 43.8 percent male in CUF, 68.9 percent female and 31.1 percent male in Decatur, and 65.3 percent female and 34.7 percent male in the Champaign County farm sample. The October samples were more evenly divided by gender, especially for Decatur (see Table C.41 in Appendix C).

4.2.2. Response Rates

To maximize the response rate and reduce bias due to selective nonresponse, SRL makes 10 attempts to reach an eligible respondent before an unanswered telephone number is treated as a "noncontact" or before an unavailable "eligible" is permanently classified as "unavailable." In addition, "refusals" and "incomplete interviews" are routinely transferred to an exceptionally effective interviewer who specializes in converting them into "completes."

Tables 2 (for the July survey) and 3 (for the October survey) show the final disposition of all eligible telephone numbers for which contact for an interview was attempted. Two definitions of response rates are used (as suggested by Groves and Kahn, 1979). Response Rate A is the ratio of completed interviews to all eligible numbers attempted, and Response Rate B is the ratio of completed interviews to all eligible numbers minus the "noncontacts." (Response Rate A assumes that all of the noncontacts are eligible households, while Response Rate B assumes that none of the noncontacts are eligible. The truth is certainly somewhere in between.) The table also gives a "completion rate," consisting of the ratio of completed interviews to completed plus refused. All three ratios are expressed as percentages and presented in boldface type in the "Completed" column.

The response rates are uniformly high. Groves and Kahn (1979) report response rates for telephone interviews that are in the 60-70 percent range for either Response Rate A or Response Rate B, while those obtained here are 73 percent or higher. The SRL completion rates are also more than 10 percentage points greater than those obtained in Groves and Kahn's national survey.

The obtained sample sizes for all samples equal or slightly exceed the intended sizes. The July CUF sample breaks down to 57.7 percent (N = 409) in the City of Champaign, 36.8 percent (N = 261) in the City of Urbana, and 5.5 percent (N = 39) in the immediate urbanized fringe (see Table C.1 in Appendix C). The ratio of the size of the Champaign subsample to the Urbana subsample in July (1.57) closely matches the ratio (1.62) calculated from 1980 U.S. Census figures for the population of the two cities. The October survey yielded a Champaign-to-Urbana ratio of 1.89, which is within normal sampling error (p = .05 or less) of the July ratio or the 1980 Census ratio.

Although there is no U.S. Census category for the fringe as it is defined for these surveys, it appears that the sample proportion in the fringe is a reasonable estimate of the current relative size of the roughly one-to-three-mile-wide urbanized ring around the cities. In both the sample and in casual interpolations from village and township population estimates by the U.S. Census for July 1, 1984 (Champaign County Regional Planning Commission, 1987), about half of this fringe appears to be the Village of Savoy, which is directly south of Champaign.

4.2.3. Checks on Sample Bias

Several variables in the sample surveys are identical to U.S. Census items, permitting assessment of the likelihood of sample bias. Only data about household attributes can be compared. Most of the demographics in the surveys concern individual attributes, the occupation measures were not comparable, and income levels change too much over time to afford meaningful comparisons between the 1980 Census and a 1987 survey. Table 4 presents comparisons for persons per household and for number of elderly persons (age 65 or over) per household for C/U (excluding the urbanized fringe) and for Decatur. Farmers and the C/U

TABLE 2. Final Disposition and Response Rates, for All Three Samples in the July Survey (Percentages; Ns in parentheses)

Sample	Type of Rate[a]	Final Disposition				
		Completed	Refused	Unavailable	Noncontact	Total
CUF						
	Response Rate A	**75.0** (709)	11.2 (106)	3.6 (34)	10.2 (96)	100.0 (945)
	Response Rate B	**83.5** (709)	12.5 (106)	4.0 (34)	- -	100.0 (849)
	Completion Rate	**87.0** (709)	13.1 (106)	- -	- -	100.0 (815)
Decatur						
	Response Rate A	**73.3** (151)	14.1 (29)	4.4 (9)	8.3 (17)	100.1 (206)
	Response Rate B	**79.9** (151)	15.3 (29)	4.8 (9)	- -	100.0 (189)
	Completion Rate	**87.0** (151)	13.1 (29)	- -	- -	100.0 (180)
Champaign County Farmers						
	Response Rate A	**77.1** (155)	14.4 (29)	6.0 (12)	2.5 (5)	100.0 (201)
	Response Rate B	**79.1** (155)	14.8 (29)	15.8 (12)	- -	100.0 (196)
	Completion Rate	**84.2** (155)	15.8 (29)	- -	- -	100.0 (184)

[a] Response Rate A = (Completed interviews)/(All eligible numbers).
Response Rate B = (Completed interviews)/(All eligible numbers minus noncontacts).
Completion Rate = (Completed interviews)/(Completed interviews plus refusals).

TABLE 3. Final Disposition and Response Rates, for All Three Samples in the October Survey (Percentages; Ns in parentheses)

Sample	Type of Rate[a]	Final Disposition				Total
		Completed	Refused	Unavailable	Noncontact	
CUF						
	Response Rate A	77.8 (734)	10.4 (98)	3.8 (36)	8.0 (75)	100.0 (943)
	Response Rate B	84.6 (734)	11.3 (98)	4.1 (36)	- -	100.0 (868)
	Completion Rate	88.2 (734)	11.8 (98)	- -	- -	100.0 (832)
Decatur						
	Response Rate A	70.8 (150)	17.0 (36)	3.3 (7)	9.0 (19)	100.0 (212)
	Response Rate B	77.7 (150)	18.7 (36)	3.6 (7)	- -	100.0 (193)
	Completion Rate	80.6 (150)	19.4 (36)	- -	- -	100.0 (186)
Champaign County Farmers						
	Response Rate A	82.3 (153)	10.8 (20)	3.2 (6)	3.8 (7)	100.0 (186)
	Response Rate B	85.5 (153)	11.2 (20)	3.4 (6)	- -	100.0 (179)
	Completion Rate	88.4 (153)	11.6 (20)	- -	- -	100.0 (173)

[a] Response Rate A = (Completed interviews)/(All eligible numbers).
Response Rate B = (Completed interviews)/(All eligible numbers minus noncontacts).
Completion Rate = (Completed interviews)/(Completed interviews plus refusals).

TABLE 4. Comparisons of 1980 Census and July and October 1987 Sample Survey Data

Variable	Sample or Census	Cities of Champaign/Urbana[a]	City of Decatur
Mean number of persons per household[b]	July 1987 Sample	2.46[c]	2.49[b]
	October 1987 Sample	2.65[d]	2.78[c]
	1980 Census	2.32	2.55
Mean number of elderly (65 or over) per household[b]	July 1987 Sample	.199[c]	.393[c]
	October 1987 Sample	.175[d]	.300[c]
	1980 Census	.206	.344

[a] Does not include urbanized fringe.

[b] Does not include "inmates of institutions" or "group quarters" housing 10 or more unrelated persons. Three persons in the C/U samples and none in Decatur claimed household size of 10 or more.

[c] The 99 percent confidence interval for this sample mean contains the 1980 Census mean.

[d] The 95 percent confidence interval for this sample mean contains the 1980 Census mean.

urbanized fringe could not be checked owing to a lack of corresponding population data.

It appears that for both cities in both surveys average family size in the samples is nearly identical to the Census figures. And while households with elderly are about as well represented in the samples as in the Census population count, the Decatur samples come close to having some overrepresentation of households with elderly members in the July sample and some underrepresentation of the elderly in the October sample.

4.3. Margins of Error and Methods for Estimating Population Counts

Because of random sampling error, there is a 95 percent probability that percentages based on the total CUF sample will be up to 3.7 percentage points off from the true population percentage. To illustrate, consider the July survey finding that 47.7 percent of CUF favors a special sales tax on hazardous products in order to pay for a program to dispose of HHW in an environmentally sound manner (Table C.16, Appendix C). Because of the chance of some sampling error, there is a 95 percent probability that somewhere between 44.0 percent and 51.4 percent of all households in CUF favor this special tax.

This margin of error gets smaller for sample percentages that are most distant from 50 percent or that are closer to 0 percent or to 100 percent. For example, the margin of error for the finding that only 4.5 percent of CUF households in July have disposed of pesticides in the past year (Table C.9, Appendix C) has a margin of error of only plus or minus 1.6 percentage points.

The margin of error gets larger for smaller sample sizes. For example, while the maximum margin of error for CUF's July sample of 709 persons is plus or minus 3.7 percentage points, the maximum margin of error for the 98 sampled farmers in July is plus or minus 10 percentage points and for the 151 in the July Decatur sample it is plus or minus 8 percentage points. More information on margins of error is presented in Section D.1 of Appendix D.

Each respondent in the July CUF sample "represents" 53.5 households. With this information, it is possible to use sample findings to make estimates about the number of households in the community having an attribute measured in the July survey. For example, 32 households in the July CUF sample said that they had disposed of pesticides in the past 12 months. This projects to 1,712 households in the community that had disposed of pesticides in the past year (32 x 53.5 = 1,712). Similar procedures may be applied to October findings, where each case in the sample of 734 "represents" 51.7 households in the population.

Population projections can also be made from percentages, since each tenth of a percentage point in either the July or October CUF samples represents 37.9 households. For example, given that 4.5 percent of CUF households in July disposed of pesticides, this projects to a total of 1,706 pesticide-disposing households throughout CUF (45 x 37.9 = 1,705.5). The margins of error that applied to the percentages should also be projected and applied to the estimated population counts. In addition, there may be some rounding error in these projections. Sections D.2 and D.3 of Appendix D contain more information on making projections of population counts from the sample data.

4.4. Summary

The attention to survey methods in this chapter comes from a concern of HWRIC that a technically sound survey provide reliable data worthy of drawing implications for a wide range of communities throughout Illinois. HWRIC also wanted a sound and objective evaluation of the Champaign County HHM&W program. The survey methods reviewed here appear to meet the requirements of these technical objectives.

CHAPTER 5

HOUSEHOLD AND RESPONDENT CHARACTERISTICS FOR THE COMMUNITIES IN THE JULY AND OCTOBER SURVEYS

The three communities in this study, Champaign/Urbana, Decatur, and the Champaign County farming community, cover a fairly wide range of community types in Illinois. This chapter provides a review of the demographic and lifestyle characteristics of these three communities. Some indication is given of how these communities are similar to or different from other communities throughout Illinois.

This chapter also introduces the types of household characteristics that will enable us to search for ways of understanding what kinds of households are better informed (or less well informed) about HHM&W, what each type of household does with HHM&W, and what kinds of opinions different households have about HHM&W policies. The demographic and lifestyle characteristics of households that are described in this chapter are the attributes that we use in later chapters when discussing correlations for the data. Put another way, these demographic and lifestyle attributes become the "explanatory" or "control" variables in subsequent analyses.

5.1. The Sampled Communities Compared with Others in the State

The data in the following discussion are taken from the 1980 U.S. Census as reported in the 1983 County and City Data Book (U.S. Bureau of the Census, 1983).

The cities of Champaign and Urbana may be best known for being hosts to a major university, but they are in many key demographic respects similar to some of the cities and suburbs in the larger Chicago metropolitan area.

A comparison of educational level of residents provides a good example. Among all residents aged 25 and over in the state of Illinois, just over half (53 percent) have had education through at least four years of high school. Somewhat higher percentages would be expected of the cities of Champaign (73 percent) and Urbana (76 percent). This percentage is as high or higher in Wilmette (88 percent), Wheaton (81 percent), Skokie (76 percent), Schaumberg (77 percent), Park Ridge (77 percent), Park Forest (85 percent), and a long list of others through Downers Grove (75 percent) and Arlington Heights (83 percent).

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5.2. Demographics of the Samples

The discussion beginning in this section draws from the tables in Appendix C. Notes on the introductory pages to Appendix C explain the format of the tables and the procedures for assessing whether or not there were significant differences between the samples for the three communities (each sample is compared separately with each of the other two samples) and between the two surveys.

As should be the case if we have good random samples, there are very few significant differences between the July and October surveys with regard to demographics. The discussion, therefore, focuses principally on the July survey, noting only the significant differences with the October survey.

5.2.1. Socioeconomic Status

Awareness of HHM&W may be more prevalent in some occupational groups, such as farmers, than among others. Formal education may play some role in what we know or think about HHM&W. Some or all HHM may be more commonly used by lower-income or lower-education groups than by others. In short, socioeconomic status may be important in understanding the extent of awareness, use, and disposal of HHM&W among the public.

As should be expected, the CUF sample is significantly better educated than either the Decatur or farm samples (Table C.31). In CUF in July, 72 percent of the respondents had at least some college education, while in Decatur, it was 50 percent. The Decatur sample was, in turn, better educated than the farmers (37 percent with at least some college education). There were no significant changes in average educational attainment by October.

Both full-time and part-time employment rates in July were also highest in CUF, enough so that the 29 percent not employed in CUF is significantly smaller than the 43 percent not employed in Decatur and the 47 percent not employed in the farmer sample (Table C.34a). One reason for the larger proportions not employed in Decatur and among farmers was the higher percentage who were retired or keeping house (Table C.34b). The return of students in October resulted in a near doubling of the percentage of unemployed students in the CUF surveys. Employment status proved not to be useful in the explanatory analyses presented in later chapters.

On income (Table C.36-40), it was the farmers who had a distinctly higher mean income ($34,000) in July, while the CUF sample surprisingly had the lowest average income (mean income of $27,300). This may reflect in part the youth (average age of 39.5 years) of CUF compared with Decatur (average age of 48.1) and the farmers (average age of 51.4) (Table C.32). No significant changes in income or age were found in comparing the July and October surveys.

Although CUF may have disproportionate employment in education, the overall occupations of the CUF sample were not significantly more professional or technical/administrative than were those of the Decatur sample (Table C.35). The University of Illinois' presence is not particularly prominent in these figures. Indeed, only 6.9 percent of the CUF sample in July consisted of unemployed students (Table C.34b). (However, an unknown number of employed respondents were also students.)

Our measure of occupation (Table C.35) shows only one difference between CUF and Decatur. Blue-collar workers were 23 percent of the Decatur sample, which is almost double the CUF level of 12 percent. Aside from this, Decatur's most distinctive labor force characteristic is its large proportion (22 percent) of retirees (Table C.34b). In comparing occupations between the July and October surveys, there was a significant change only in the percentage of Decatur respondents employed in technical, sales, and administrative support occupations.

The farmers are, of course, occupationally more homogeneous, although a surprisingly large proportion (24.4 percent) claimed nonfarming occupations while elsewhere reporting that someone in their household farmed. The "no occupation" group (Table C.35) consisted mainly of persons who were keeping house (Table C.34b), which is a small proportion of the CUF sample (7.6 percent) and the Decatur sample (12.0 percent) but 34.7 percent of the farmer sample. It is common for farm surveys to have more farm wife respondents than males, as clearly occurred here (Table C.41).

In the explanatory analyses in the following chapters, the occupation variables proved to be either not useful or essentially redundant with income and education.

5.2.2. Life Stage and Gender

As compared with older people, young people might be expected to have accumulated less HHM in storage, while possibly being heavy consumers of HHM and producers of HHW. Younger people with fewer roots in a community may be less constrained by values regarding what is good for the community as a whole. Males may be acquainted with different HHM&W than are females and may assess disposal options differently.

Among the survey samples in the three communities, CUF samples were the most evenly divided between male (44 percent) and female (56 percent) (Table C.41). Females in CUF were less readily available to interviewers than they were in Decatur and on farms, perhaps because in CUF there were fewer "housekeepers" and more employed people of both genders.

The CUF sample was not only the youngest of the three (averaging only 39.5 years of age in the July survey, Table C.32), it also had by far the fewest years of residence (averaging only 15.9 years in July, Table C.2). Nearly one-third of the CUF sample had lived there for three years or less, compared with only one-tenth of the Decatur sample and less than one-thirtieth of the farmers. Nearly 2 percent of the CUF sample was resident less than two months in July 1987 but expected to be resident in the fall. Residents of this young and mobile community have not, on average, had as long to accumulate hazardous materials as have Decatur or farm residents.

Although the July survey showed that CUF has a nontrivial 14.5 percent of households with elderly members (aged 65 or over), this is less than half the rate found in Decatur (29.1 percent) and involves significantly fewer elderly persons per household (.199) than in the farm sample (.437, Table C.30). The October survey shows some nonsignificant fluctuation from the July survey with regard to the percentage of elderly persons in households.

The July average household size comes out at the same relatively small number in CUF (2.46) and Decatur (2.49) and is highest on farms (2.91). The July to October fluctuation in household size is within the range of sampling error.

5.2.3. Type of Housing

In HHM&W educational and collection programming, it is common to assume that homeowners or residents of single-family houses differ from apartment dwellers in how much HHM of various kinds they use. Long-time residents are thought to have accumulated more unwanted materials than have newer residents, who may have cleaned out their HHW on the occasion of their last move.

The July survey showed that nearly one-third (31.7 percent) of the CUF sample lived in apartments or townhouses, compared with only 11 percent of the Decatur sample and 1 percent of the farmer respondents (Table C.28). This difference mirrors the smaller proportion of households in single-family houses in CUF (56.3 percent) than in Decatur (81.5 percent) or the farm sample (92.9 percent). Less than 1 percent of the CUF sample said that they lived in group housing such as a fraternity or sorority; in fact, only one respondent reported living in a household of 10 or more persons in July and only two respondents reported this in October. Except for these three respondents, our sampling procedures did not pick up any "group housing" respondents in any of the samples.

Corresponding to the greater apartment residency, youth, and mobility of the CUF sample, this sample also had (Table C.29) a significantly larger percentage of renters (45.7 percent) than did the Decatur sample (20.7 percent) or the farmers (13.3 percent). This nonetheless leaves a majority (53.7 percent) of the CUF sample, and huge majorities in the other communities, consisting of homeowners. Over 85 percent of homeowners lived in single-family houses in all samples and both surveys. Because the ownership status (homeowner/renter) variable proved to be essentially redundant with the variable identifying type of housing (single-family house versus duplex, apartment, mobile home, or other), only the housing variable was used in the explanatory analyses in subsequent chapters.

5.2.4. Champaign/Urbana Neighborhoods

Neighborhoods provide the structure that public service officials use to divide and distribute services of all kinds. While it is, of course, not necessarily true that neighborhoods differ in needs or wants, the exigencies of service delivery generally means that officials develop ways of describing neighborhoods and assigning efforts to them. In the distribution of house-to-house information, or in the selection of media appeals, HHM&W educational campaigns are inevitably targeted to neighborhoods. It is, therefore, useful to know how neighborhoods actually do differ in what they think about or do with HHM&W. In this study, only CUF has a large enough sample size to permit a breakdown for neighborhoods.

The distribution of the CUF sample among various broadly defined neighborhoods is given in Table C.26, 27. The City of Champaign subsamples have their largest "quadrant" south of University Avenue and west of Prospect Avenue, as might be expected in order to reflect the actual population distribution. Similarly, the largest "quadrant" in the Urbana samples is appropriately south of University Avenue and east of Vine Street.

5.3. Lifestyle Attributes of the Samples

The aspects of lifestyle that were considered potentially relevant to understanding what people think about and do with HHM&W are those that reflect consumer behavior, active concern for the environment, civic responsibility, and types of media involvement.

5.3.1. Consumer Market Engagement

A measure of consumer market engagement was included on the assumption that it might ultimately help explain who was most responsive to the HHM&W campaign. People who are active, aggressive consumers might be more interested than would passive consumers in finding appropriate, even if troublesome, disposal options. Asked whether they were usually among the first to try new products when they come on the market, some 10-14 percent in each of the samples answered "yes" (Table C.12, 13, 14). There are no significant differences between the samples or between the July and October surveys. This variable also proved not to be an important factor in explaining aspects of HHM&W possession or disposal.

5.3.2. Recycling

We asked about the extent of recycling of household cans, bottles, and newspapers by the respondent's household, thinking that this might have some effect on awareness or handling of hazardous waste. Table C.24 shows the basic findings on the extent of recycling by sample. Among both the farmers and the CUF households in July, over 30 percent recycled most or all of their newspapers, cans, and bottles. It may be important to note that there is no significant difference in recycling between these two samples. The October sample showed that CUF residents had a slightly reduced percentage who recycled all or most of their cans, bottles, and newspapers and a corresponding slight increase in the percentage who never recycle. This change in CUF is statistically significant. It probably reflects the return of the student population.

Decatur households are significantly less involved in recycling than are either the CUF households or the Champaign County farmers. This is no doubt partly due to the demonstrable absence of a weekly curbside recycling program in Decatur (Table C.25). Champaign County farmers also reported a low level of curbside pickup of cans, bottles, and newspapers. This reported rural curbside pickup probably consists of the periodic waste motor oil, newspaper, and metal can pickup drives organized by the Farm Bureau or the 4-H, at least one round of which had just occurred within a month before the July survey of the farmers.

Nearly 42 percent of the households in CUF reported in the July survey being in a neighborhood with weekly recycling (Table C.25). This perceived availability is probably within 30 percentage points below actual availability, given that curbside pickup was in fact not available in roughly half of the city of Champaign and in the fringe. Because of the interest in this matter by the hazardous waste drive sponsors (the Intergovernmental Solid Waste Disposal Association of the City of Champaign, City of Urbana, and Champaign County), a detailed breakdown of CUF household recycling behavior by city and neighborhood, as reported in the July survey, is given in Table 5. Further analyses for different types of housing, for different age groups, and for the October versus July surveys are not especially relevant here but should be the subject of separate reports.

Despite somewhat different curbside recycling programs, Champaign and Urbana had in July equally high rates of self-reported recycling participation. Champaign had 32.2 percent and Urbana had 35.8 percent saying that they recycle all or most of their cans, bottles, and newspapers. These percentages are not significantly different. The two cities do differ significantly regarding the percentage who said that their neighborhood had a weekly curbside recycling program, with 41 percent in Champaign and 50 percent in Urbana saying that such a program was available to them. The actual availability in Champaign was not much greater, while in Urbana actual availability was virtually 100 percent.

The neighborhoods having the highest recycling rates are in Urbana south of University Avenue and in Champaign west of Prospect Avenue. North Urbana and northeast Champaign are distinctively lower in participation, while nonetheless far exceeding the participation levels in Decatur and about matching that of the urban fringe (compare with Tables C.24 and C.25). The fringe has strong mid-range participation (recycling "some" or "most"), which represents a strong commitment considering the lack of weekly curbside pickup.

TABLE 5. Household Participation in Recycling and Perception of Availability of Curbside Recycling, by City and Neighborhood in Champaign/Urbana/Fringe, July 1987 Survey (Percents; Ns for totals in parentheses)

City and Neighborhood[a]	Amount of Newspapers, Cans, and Bottles Recycled by Household?					Is Weekly Curbside Recycling Available in Neighborhood?			
	All	Most	Some	None	Total	Yes	No	DK	Total
Champaign City:	17.5	14.7	30.4	37.4	100.0 (401)	40.9	55.1	4.0	100.0 (401)
NE Champaign	13.3	8.3	28.3	50.0	99.0 (60)	38.3	56.7	5.0	100.0 (60)
NW Champaign	16.9	18.2	37.7	27.3	100.1 (77)	37.7	61.0	1.3	100.0 (77)
SE Champaign	15.9	15.9	25.4	42.8	100.0 (126)	40.5	54.0	5.6	100.1 (126)
SW Champaign	21.0	14.5	31.9	32.6	100.0 (138)	44.2	55.2	3.6	100.0 (138)
Urbana City:	22.1	13.7	27.7	36.5	100.0 (249)	50.2	37.8	12.0	100.0 (251)
NE Urbana	12.5	3.1	34.4	50.0	100.0 (32)	3.1	90.6	6.3	100.0 (32)
NW Urbana	14.8	7.4	25.9	51.9	100.0 (27)	37.0	51.9	11.1	100.0 (27)
SE Urbana	23.9	19.5	27.4	29.2	100.0 (113)	61.4	25.4	13.2	100.0 (114)
SW Urbana	26.0	11.7	26.0	36.4	100.1 (77)	57.7	29.5	12.8	100.0 (78)
C/U Fringe	53.2	23.7	34.2	36.8	99.9 (38)	0.0	97.4	2.6	100.0 (38)
Unclassified	27.8	11.1	16.7	44.4	100.0 (18)	33.3	56.6	11.1	100.0 (18)
Totals	18.6	14.7	29.2	37.1	100.0 (706)	41.7	51.3	6.9	99.9 (709)

[a] The dividing line between north and south is University Avenue. The dividing lines between east and west are Prospect Avenue in Champaign and Vine Street extended into Cunningham Avenue in Urbana.

Involvement in recycling may indicate the presence of attitudes and lifestyle that are predisposing toward greater waste consciousness during and after an HHM&W campaign.

5.3.3. Voting

One hypothesis was that those tied into community civic networks, as identified by voting participation in local elections, would be accessible to or predisposed toward the messages of the HHM&W campaign. The reciprocal effect of accessibility is, of course, influence, and voters are of special interest for their influence in selecting the policy makers who ultimately decide on waste disposal options.

Our self-reported measure of voter participation yielded unreasonably high proportions of respondents saying that they normally vote in local elections (Table C.33). Nearly 95 percent of the farmers, nearly 80 percent of the Decatur sample, and over 60 percent of the CUF sample said that they normally vote. These are obvious exaggerations, especially in light of the November 3, 1987, local election turnout of only 10-25 percent in these communities. For many who answered "yes," this variable may best be taken as an indication of community civic interest or of personally idealized or intended participation rather than of actual behavior. At the least, there seems little ambiguity about the lower interest or involvement of those who answered "no." Regardless of these concerns, as will be shown, this proves to be a very important variable.

5.3.4. Media Sources

People's media sources, especially for local news, may be important both in targeting HHM&W campaigns and in determining who becomes informed and involved in HHM&W campaign activities and objectives. One of HWRIC's major concerns in this project was to identify the media sources that might influence attitudes and behavior with regard to HHM&W.

Tables C.19 through C.22 report findings on media sources for each of the three samples. Findings include the following:

* Over half of each sample receives news and information about local community affairs mainly from a newspaper, with this proportion significantly higher for farmers than for CUF residents (Table C.19).

* Television is the next most important source of local news (for one-quarter to over one-third of the samples), with radio a very distant third. Virtually no one claimed to rely on friends, family, or other word-of-mouth (Table C.19).

* Each sampled community has one overwhelmingly dominant newspaper, the most important local news source. Among CUF residents, over

80 percent read the CU News-Gazette for local news, as do about 90 percent of the farmers (Table C.22).

- For local news, the second most important source, TV, tends to be dominated in each community by a single channel. The most watched TV station for local news is, for 70-75 percent of the CUF samples and approximately 90 percent of the farmers, Channel 3 (WCIA) (Table C.20).
- The least important media source for local news, the radio, is fragmented into many small audiences. The most listened-to radio station is WLRW-FM for 23 percent of the CUF samples and WDWS-AM for about 40 percent of the farmers (Table C.21).
- There were no significant changes in types of media involvement from July to October.

5.4. Summary

The three communities in this study are examples of a fairly wide range of community types in Illinois. In regard to socioeconomic composition, the cities of Champaign and Urbana are very much like some Chicago-area cities and suburbs. Decatur is more typical of the state as a whole, especially of its industrial areas. The Champaign County farming community is well known for its productivity and leadership in agriculture.

The demographic and lifestyle attributes of households in the three samples include the following:

a. Demographic characteristics:

Educational attainment
Employment status
Household income
Occupation
Gender
Age
Household composition
Type of housing and residential tenure

b. Lifestyle attributes:

Neighborhood of residence (for Champaign/Urbana only)
Consumer market engagement
Recycling behavior
Voting participation
Primary media sources

These communities illustrate in certain respects (e.g., educational levels, length of residence, type of housing, recycling behavior, and occupational structure) the range of communities that they in some sense represent and may be viewed as examples of what might be found elsewhere.

The household and respondent attributes are illustrative in another way. In the next three chapters, we analyze public awareness, possession, disposal, and views of HHM&W and will use these household and respondent characteristics to see which ones best explain or help us understand what the public thinks about and does with HHM&W. When we find, for example, what the better-educated households think and do with regard to HHM&W, these analyses can to some extent be generalized to other communities.

CHAPTER 6

AWARENESS OF HHM&W

The July and October 1987 surveys provide a number of measures of awareness of HHM&W prior to the onset of the information and publicity campaign and collection drive. This chapter reviews basic descriptive findings about awareness and perceptions of the hazardousness of HHM&W. Several measures of awareness are also analyzed more fully here in order to assess possible explanations for, or at least correlates of, that awareness.

The researchers and their consultants at HWRIC had some working familiarity with various lists of the types of materials that are considered hazardous by experts and are used by homeowners and tenants around their residence. The list that we ultimately decided to ask about included 12 types of materials: herbicides; pesticides or poisons; oven cleaners; drain openers; toilet bowl cleaners; varnishes, wood preservatives, or oil-based paints; paint thinners, strippers, or solvents; charcoal lighter fluid or propane gas; car motor oil; gasoline or kerosene; car antifreeze; and auto, truck, or boat batteries (see Table C.7).

This is not an exhaustive list, but it covers most materials of any presumed substantial volume and familiarity in households. The other hazardous household materials that might have been included range from fingernail polish remover (a typical example of a small volume but highly powerful and hazardous solvent) to photoprocessing chemicals, lead-based paint on surfaces or in stored containers, swimming pool chemicals, or asbestos insulation.

To measure public awareness of HHM&W, it was necessary to begin the survey without providing definitions or examples. Revealing the researcher's ideas of what constitutes HHW&W had to be deferred until the respondent's awareness was tapped. Hence, this chapter presents findings regarding "unprompted" understandings of HHM&W.

6.1. Heard Anything At All About HHW? If So, How?

Early in the questionnaire (Q.4a), before any examples of HHM&W were named, respondents were asked, "Prior to this call, had you heard anything at all about hazardous household waste?" This question does not necessarily tap knowledge as much as it taps the existence of public discourse involving the term "household hazardous waste" or "hazardous household waste." Some people may be familiar with certain aspects of

HHM&W from reading labels or by generalizing from public discussions about hazardous wastes, yet they may not have "heard of HHW." As distinct from knowledge about HHW, to have heard of HHW is to be aware of the topic as a matter of some public discussion or debate.

For several reasons, a more elaborate discussion is given to who and how many people heard about HHW than to other topics in this and the next two chapters. The question of who heard about HHW is fundamental for understanding how respondents answer subsequent questions about HHW. Also, some basic themes that recur in subsequent discussions emerge first here. Finally, some repeatedly used methods of analysis are introduced here.

6.1.1. Descriptive Findings

Level of Awareness

The main findings are that substantial early awareness by 30-60 percent of the population existed in the pre-publicity period and that the publicity resulted in an additional 20 percent hearing about HHM&W.

Specifically, as shown in Table C.4, Q.4a, we found the following:

* A substantial 38 percent of the Champaign/Urbana/fringe (CUF) sample had heard something about HHW in July prior to the publicity campaign. This is significantly larger (p = .05) than the 28 percent in the Decatur sample.

* More striking is the 58 percent of the Champaign County farmer sample who had heard something about HHW in July. This is significantly larger (p = .01) than the percentages for either the CUF or Decatur samples.

* CUF and farmers experienced a significant and very substantial increase in awarenesss during the period of the publicity campaign. The percentage of CUF residents who had heard something about HHW increased 21 percentage points from 38 percent in July to 59 percent in October. The percentage of farmers who had heard something about HHW increased 20 percentage points from 58 percent to 78 percent.

* In the comparison community of Decatur, where relevant publicity was largely limited to that which spilled over from the mass media serving Champaign County, the percentage who had heard something about HHW also increased, but by only 7 percentage points (one-third of the rate in the two target communities), rising from 28 percent to 35 percent. In light of the probabilities of random sampling error, this change is not sigificantly different from no change.

Sources of Awareness

When asked how they had heard about HHW (Q.4b), very few sources were mentioned by the July respondents. There were slightly more responses in October. Most notable in both July and October were mentions of mass media sources, which were (in order of most to least frequent mentions for CUF and Decatur in July and for CUF in October) newspapers, TV, and radio. This is the same order that emerged for all samples later in the questionnaire when respondents were asked to identify their main local news sources in general (Table C.19).

From July to October in CUF, there was a statistically significant change involving a doubling or near doubling in the percentage who had heard about HHW from the three key mass media of newspaper, radio, and TV. There was also a tripling of the impact of radio in the farm area. Even with these increased impacts, however, less than half of either sample cited any one of these media in October. Radio was cited by only 10 percent in CUF and 15 percent by farmers, TV by 23 percent in CUF and 29 percent by farmers, and newspapers by only 31 percent in CUF and 44 percent by farmers. This is nowhere near the full market penetration and saturation of impact that one might wish from a media campaign. Yet, given the somewhat limited mass media publicity about the September 13 HHW collection drive in Champaign County (as discussed in Chapter 3), the observed change in the level of awareness of HHW demonstrates that even a modest effort can have a significant impact.

The July farmer sample cited magazines ahead of radio as a source from which they heard about HHW. This may reflect some effectiveness for the long-running effort by a number of farmers' magazines, including Successful Farming, to inform farmers about hazardous materials.

Farmers were generally high in citing all types of mass media as information sources. Some of the July and October newspaper citations by farmers were, however, to the Champaign County Farm Bureau News or to the Illinois Farm Bureau's Farm Almanac, both of which had carried some news about problems with hazardous materials around the farm. There was also a striking July-to-October increase in farmer's citations of the Farm Bureau itself as a source of information about HHW. This reflects both the commitment of the Farm Bureau to cooperating in the collection drive as a sign of its support for alternatives to local landfill disposal, as well as the obvious effectiveness of the Farm Bureau in reaching its own membership.

It may be important that relatively few citations were made in any sample to interpersonal sources of information. Interpersonal networks (or "word of mouth" information exchanges among people who know each other) are generally regarded as very effective but ordinarily rare sources of influence during the very early stages of any information-distribution program.

Clubs are a type of interpersonal source that can and often have been very important in HHW collection drives. The League of Women Voters has had a long history of leadership in this area. Other civic groups often join in on these campaigns. In the Champaign County campaign, there was minimal evident club involvement and minimal recognition of clubs as an information source. Churches and schools were apparently totally disengaged from the campaign.

The most prominent interpersonal sources of HHW information were fellow workers (informing as many as 12 percent of those who had heard anything at all in CUF or in Decatur about HHW in July) and neighbors (a source for 8 percent of the CUF sample in July who had heard something). Among farmers, the Farm Bureau (which may be counted as a type of interpersonal network for many farmers) was very frequently mentioned in October.

Flyers or brochures (including "doorhangers" or cards hung on doorknobs) were distributed throughout many Champaign/Urbana neighborhoods before the collection event (see Chapter 3). There was also a massive mailing of a flyer/brochure to most residents of the two cities. Despite this tremendous effort, flyers or brochures did not receive much recognition in October as an information source regarding HHW. Only 8 percent cited them in CUF. Although the increase in impact was statistically significant, the attained level of impact was not especially prominent. We also found that there was no relationship between the citation of flyers or brochures and residency in any of the four quadrants of Champaign, in any of the four quadrants of Urbana, or in the fringe area.

It appears that doorhangers and mass mailings may have less impact than might be surmised by the fact that they can provide "contact" with every household in the areas covered. Posters also did not attain a level of any real importance as an information source. Perhaps that is because very few posters went up.

Summary

As a way of summarizing HHW information sources, we combined the respondent's citations into two scales. The first is a count of the total number of interpersonal sources of information cited by the respondent as a source of information about HHW (defined as a count of the number of the following sources that were cited: neighbor, family, work, club, farm bureau, and school). For the CUF sample, this had a mean of .11 in July and .14 in October; for Decatur, a mean of .04 in July and .07 in October; and among farmers, a mean of .11 in July and .60 in October. Only among farmers was the change from July to October statistically significant at $p = .05$ or less. Interpersonal sources were no more important after the campaign in CUF than they were before, lending further evidence that an important resource was underutilized.

The second summary scale of information sources was a count of the number of types of mass media (defined as newspapers, radio, television, and magazines) cited by the respondent as sources of information about HHW. For the CUF sample, this had a mean of .40 in July and 1.16 in October; for Decatur, a mean of .39 in July and .53 in October; and for farmers, a mean of .82 in July and 1.80 in October. In this case, the changes in both CUF and among the farmers were statistically significant at p = .05 or less, while in Decatur there was no significant change. This is an indication of a substantial impact of the publicity campaign via mass media in the target CUF and farmer communities and the absence of such an impact in the comparison community despite the media spillover that Decatur inevitably received.

Except for the Farm Bureau, there was little or no evidence of involvement in information distribution by community organizations or institutions that provide personal contact. Vast organizational resources went untapped. The exception that proves the potential for using these organizational resources is the Farm Bureau. No measurable increase in discussion about HHW was generated between work associates, neighbors, friends, and family. It was reported that flyers or brochures had a significantly increased impact, although their overall level of impact was small. The mass media, while not approaching saturation impact, nonetheless played by far the most significant role in expanding basic awareness of HHW. The resulting expansion of awareness fell far short of reaching the entire community but was nonetheless substantial, with roughly 20 percent more of each target community (CUF and farmers) having heard about HHW by October. It would clearly take a more extensive campaign or multiple cycles of publicity to come closer to reaching all households.

6.1.2. Explaining Awareness

We wanted to find out (a) what kinds of households had heard something about HHW and (b) what kinds of households had heard something from each of the major types of potential sources of information. To get at these questions, we took the demographic and lifestyle attributes reviewed in Chapter 5 and examined their relationship with the following three variables:

- Heard of HHW: a simple two-point "Yes/No" scale for indicating whether or not the respondent had heard anything at all about HHW. This had a mean of .377 in CUF in July (meaning that 37.7 percent had heard something) and a mean of .591 in October. In Decatur, the mean was .280 in July and .347 in October; among farmers, it was .582 in July and .783 in October (see top of Tables C.4 or 6.1).
- Interpersonal networks: a summary scale consisting of the number of interpersonal sources of information cited by the respondent as a source of information about HHW (discussed in the preceding subsection).
- Mass media: a second summary scale consisting of the number of types of mass media cited by the respondent as sources of information about HHW (discussed in the preceding subsection).

These variables were then correlated with all of the respondent attributes discussed in Chapter 5. This meant creating a set of dichotomous (or "yes/no") variables for such categorical variables as type of housing or favorite radio station. Our five-category measure of occupation became a five-point scale with a high of 5 for the category containing occupations commonly thought to have the lowest prestige, "Blue-Collar Production, Craft, or Repair" (see Q.35 [July] or Q.36 [October] in Appendix B and Table C.35). All missing data cases and all "don't knows" were deleted in pair-wise fashion for calculating the simple zero-order Pearson correlation coefficients (see next subsection).

6.1.3. A Note on Correlation Coefficients

Correlation coefficients are statistics that measure the strength of association or relationship between two variables. These statistics, denoted by the letter r, can have any value from r = -1.00 through r = 0 to r = +1.00. A correlation coefficient of r = +1.00 indicates a perfect positive relationship, meaning that a given score on one variable is always associated with a corresponding score on the other variable (e.g., if all women respondents reported that they had insecticides in their homes and no men reported having them, we would find a perfect positive correlation of r = +1.00 between being a woman and having insecticides). Similarly, a perfect negative relationship is indicated by r = -1.00, found where the high value on one variable is always associated with the low value on another.

It is very rare to find perfect positive or negative relationships. In fact, strong correlations for social, behavioral, and opinion data ordinarily do not get much higher than r = + or -.30. Such a coefficient reflects a very strong relationship indeed. For example, if 57 percent of women had insecticides and only 31 percent of men had insecticides, and if there were as many men as women in our sample, the correlation coefficient between gender and having insecticides would be r = .27.

Moderate correlations for the data reported here are ordinarily those in the range of about r = + or -.12 to r = + or -.19, with larger correlations generally being considered strong or very strong. Weak correlations are ordinarily smaller than r = + or -.12. A correlation of r = 0 indicates no relationship whatsoever. Sometimes the sample data show a very weak "relationship" that could be produced by chance alone or could be due to sampling error. These very weak correlations (in the CUF sample, those under r = + or -.06) are considered statistically insignificant and are not reported here. Only selected examples of the significant correlations are noted in order to avoid redundancy of meaning and overload of numbers.

To augment the correlation analysis of "who heard anything at all about HHW," tables showing percentages in cross-tabulation form are also provided. These tables pertain only to whether people had heard anything (not to how they heard) and show the percentages of selected demographic and lifestyle groups or subsamples who had heard about HHW.

6.1.4. Who Was Reached? The Findings

In summary, then, we report selected nonredundant respondent attributes that were found to have a significant (p = .05, or 95 percent confidence level) correlation with each of the three previously noted measures of awareness: heard of HHW, interpersonal networks, and mass media.

Socioeconomic Status: July

CUF. In the July CUF sample, it was the more highly educated (r = .10) and higher-income households (r = .07) that had previously heard something about HHW. The better-educated (r = .16) respondents were also more likely to cite interpersonal networks as their specific source of information about HHW. There was no pattern for identifying those who cited the mass media as sources in July. The mass media were having a random effect in this pre-publicity campaign, while interpersonal networks were reaching persons with higher socioeconomic status. In percentage terms (Table 6), the July CUF correlation of r = .10 between education and having heard about HHW translates into a difference between 33.5 percent of those with less than four years of college education having heard about HHW and 42.4 percent of those with at least four years of education having heard about HHW.

Decatur and farmers. The better educated in Decatur (r = .17) and the farm sample (r = .22) were also significantly more likely to claim prior knowledge of HHW in July. Higher-income Decatur residents were more likely to have already heard about HHW (r = .24), but there was no income effect on having heard about HHW among farmers. Occupational status was not associated with hearing about HHW for either sample. There were no significant correlations between socioeconomic attributes and specific sources of information about HHW in these samples.

Socioeconomic Status: October

By October, the proportion of the target communities (CUF and farmers) that had heard of HHW had substantially increased. Did they now represent different segments of the community? If knowledge was spreading more broadly, the October correlations would be weaker than the July correlations. If knowledge was being more extensively distributed or received in the very same groups that disproportionately had it in July, the October correlations for these groups would be larger. The percentage table (Table 6) shows which groups had the greatest change.

CUF. The CUF correlation between education and having heard about HHW increased from .10 in July to .12 in October. Although this is a modest change in the correlation coefficient, the change in percentages is more impressive. Table 6 shows a greater change (25 percentage points, from 42 percent to 67 percent) in the awareness of the well educated than in the awareness of the less well educated (who experienced an 18 percentage point change from 34 percent to 52 percent who had heard

TABLE 6. Percent of Respondents in Various Socioeconomic Groups Who Had Heard of HHW, by Sample and Survey Date (Cell sizes in parentheses)

Socioeconomic Group	Champaign/Urbana/ Fringe		Decatur		Champaign County Farmers	
	July '87	Oct. '87	July '87	Oct. '87	July '87	Oct. '87
Full Sample	37.7 (264)	59.1 (430)	28.0 (42)	34.7 (52)	58.2 (57)	78.3 (119)
Education:						
Less than 4 years of college	33.5[a] (125)	51.7[b] (196)	25.0 (27)	32.2 (38)	56.1 (46)	74.8[a] (92)
4 years of college or more	42.4 (139)	67.2 (234)	35.7 (15)	43.8 (14)	68.8 (11)	92.9 (26)
1986 Household Income:						
Less than $20,000	33.7 (88)	46.6[b] (123)	19.5[a] (8)	33.3 (13)	57.1 (8)	78.6 (11)
$20,000-$40,000	40.3 (83)	63.2[a] (156)	23.2[a] (13)	44.3 (27)	54.1 (20)	81.3 (39)
Over $40,000	40.4 (59)	74.5 (105)	51.9 (14)	31.0 (9)	63.2 (12)	76.2 (32)

[a] Differs significantly from the next percentage down the column by $p \leq .05$.

[b] Differs significantly from the next percentage down the column by $p \leq .01$.

of HHW). Although more of the less educated were becoming aware, they were doing so at a lower rate of change than were the better educated. In other words, the awareness gap by educational level was widening.

This widening gap in CUF is much more pronounced for income groupings. Whereas the income correlation with having heard of HHW was barely significant at r = .07 in July, it rose to r = .26 in October. Table 6 shows that the percentage of those with less than $20,000 income who had heard of HHW rose 13 percentage points (34 percent to 47 percent) from July to October, while those with greater than $40,000 income who had heard of HHW rose nearly 35 percentage points from 40 percent to 74 percent. With regard to sources of information in the October survey in CUF, higher-income respondents gave significantly more citations both to mass media (r = .18) and to interpersonal networks (r = .08). Although education had no effect on information source, the effect of income alone is sufficient to indicate that higher-status households not only retained their better pre-publicity reception of HHW information from interpersonal sources but also became better receptors of any HHW information that got into the mass media as a result of the publicity campaign.

Decatur. In Decatur, education remained important in explaining awareness in October, changing from an r = .17 in July to an r = .15 in October. Both higher and lower education groups gained in awareness at about the same modest rate (Table 6). Moreover, where income was important in differentiating the aware from the unaware in July, it was no longer a significant factor in October. In short, the observed increase in awareness seems to have spread more evenly through the socioeconomic strata in Decatur than in CUF. There also continued to be no relationship between socioeconomic status and the particular sources of HHW information (interpersonal or mass media) in Decatur. Since Decatur was essentially still in a pre-campaign situation, information from CUF was still more randomly spread.

Farmers. Among farmers, education was again a factor in awareness in October. Whereas the correlation with having heard of HHW was .22 in July, it was .23 in October, despite an enormous increase in the proportion of the total farm population that had become aware. The gains in awareness were slightly greater for the better educated than for the less well educated. It appears that the better-educated farmers may be reaching a ceiling of awareness, with 93 percent already saying in October that they had heard some thing about HHW.

In trying to explain sources of HHW information for farmers, it was found that the mass media reached all farmers equally. However, information sources from interpersonal networks disproportionately reached the better-educated (r = .20) and higher-income (r = .33) farmers. Interpersonal networks were defined here to include the Farm Bureau, a very extensively cited information source among farmers and evidently one to which higher-income farmers paid particular attention. This is, of course, consistent with findings in CUF, where higher-income persons are also likely to find their interpersonal networks to be informative about HHW.

Summary. In general, higher status provides access to a more information-rich environment, more background knowledge or skills that are useful for interpreting information, and more resources for applying information.

As a ceiling is approached for reaching more of the better-educated or higher-status groups in the population, further publicity and education should have the effect of reducing the awareness gap by status level. Those who are harder to reach are necessarily more gradually brought up to some basic awareness. The messages in publicity or educational campaigns may need to be made increasingly more accessible and applicable to conditions in less well-off households in order to achieve all that these campaigns set out to do.

Life Stage and Gender: July

For all three samples at both survey dates, the gender of the respondent, the size of household, and the number of elderly persons (aged 65 or over) or school-age children (aged 5-17) in the household were found not to be particularly relevant factors in explaining who had heard about HHW or how they had heard. In contrast, respondent's age and especially length of residence in the community proved to be of some importance in interesting ways.

CUF. In the July CUF sample, older respondents (r = .13) and those who had been in the community the longest (r = .14) were most likely to have heard about HHW. These were also the people who heard about it from the mass media (r = .14 for age; r = .12 for length of residence).

The effects of length of residence and age are more clearly seen in the percentage table (Table 7). While 31 percent of those who had lived in the community 10 years or less had heard of HHW, 47 percent of those who had 36 or more years of residence said that they had heard of HHW. Similar but slightly weaker differences in awareness separate the young (aged 35 or under) from the old (60 or over). Of the two variables, age and length of residence, it appears that length of residence is the more important in explaining who finds out about HHW first. Those who have been around the community for a while, and thus perhaps have acquired a stake in it and an interest in environmental quality and protection from hazards, are the ones who in pre-publicity July had disproportionately heard about HHW.

Decatur and farmers. Moderately strong relationships between having heard of HHW and length of community residence were found in July for the Decatur (r = .17) and farm samples (r = .18). Longer-term farm residents tended to have heard about HHW from the mass media (r = .19). There were no significant correlations between whether or not the respondents in these samples had heard of HHW and either age or gender. The mass media were a major source for those farm respondents whose principal activity was "keeping house" (r = .24)

TABLE 7. Percent of Respondents in Various Length of Residence and Age Groups Who Had Heard of HHW, by Sample and Survey Date (Cell sizes in parentheses)

	Champaign/Urbana/ Fringe		Decatur		Champaign County Farmers	
Length of Residence or Age Group	July '87	Oct. '87	July '87	Oct. '87	July '87	Oct. '87
Length of Residence:						
10 years or less	31.4[b] (114)	49.8[b] (200)	25.0 (7)	27.3 (9)	45.5 (5)	80.0 (20)
11-35 years	43.5 (108)	68.1 (158)	23.9 (17)	30.4[a] (24)	50.0 (20)	86.0 (37)
36 years or more	47.2 (42)	77.4 (72)	35.3 (18)	48.6 (18)	68.1 (32)	73.5 (61)
Age:						
18-35	31.2[b] (113)	49.2[b] (193)	20.5 (9)	21.1[b] (12)	55.0 (11)	71.4 (15)
36-59	44.1 (98)	70.9 (161)	35.0 (21)	44.1 (26)	65.9 (27)	82.9 (68)
60 or over	45.0 (50)	70.1 (75)	25.6 (11)	41.2 (14)	50.0 (18)	73.5 (36)

[a] Differs significantly from the next percentage down the column by $p \leq .05$.

[b] Differs significantly from the next percentage down the column by $p \leq .01$.

Life Stage and Gender: October

CUF. In CUF, the correlation between age and having heard of HHW rose from r = .13 in July to r = .19 in October. As may by now be surmised, this reflects a greater gain in awareness among those aged 60 and over (up 25 percentage points) than among the 18-35 age group (up 18 percentage points, see Table 7). With the correlation between length of residence and awareness rising from r = .14 to r = .21, there was a corresponding but even stronger disproportionate rise in awareness among longer-term residents than among shorter-term residents. That is, those living in the community 10 years or less went up 18 percentage points in awareness, while those living in the community 36 years or more went up 30 percentage points.

With regard to information sources, older residents and those with a longer length of residence reported greater receipt of mass media reports about HHW (r = .25). On the other hand, there was no relationship in CUF in October between interpersonal network sources and life stage or gender.

Decatur. In Decatur, having heard about HHW remained fairly strongly correlated both with age (r = .25) and with length of residence (r = .15) in October. In the case of age, 21 percent of Decatur's respondents aged 35 or under said in October that they had heard of HHW (Table 7). This was almost exactly the same percentage as in July, indicating no change in awareness among the younger population. On the other hand, among the oldest age group in Table 7, 41 percent had heard about HHW in October, a rise of 15 percentage points from July. The middle age group in Decatur showed a rise of 9 percentage points.

This suggests that, in places such as Decatur, where information on HHW consists largely of media overflow or incidental mass media references, there is little or no social status differentiation in the distribution or reception of this information (as noted earlier), but there is more effective communication with older and longer-term residents. The latter seem to be the quickest to pick up on "general news" publicity relating to HHW. Lending support to this interpretation, the relationship between age and having heard about HHW from the mass media in October was r = .14 in Decatur, which is significant at p = .05.

Farmers. Age remained unimportant and length of residence became a statistically unimportant factor among farmers in October. This may reflect the fact that basic awareness among farmers is approaching saturation. Also, as in July, neither age nor length of residence helped to explain source of knowledge in October.

Summary. During the first publicity campaign for getting out information about HHW to Champaign County households, the awareness gaps between different status and life-stage groups have been widening in CUF. Awareness among the older and longer-term CUF residents and among the better-educated or higher-income CUF residents may be approaching a ceiling. As this ceiling is approached for those who are quick to become informed, and as the others catch up, the gap should narrow and possibly disappear. This already seems to be occurring among the initially better-informed farmers. Meanwhile, older people and especially those with a more established stake in the community seem to be more receptive to early information about problems with HHW around their homes and in their community.

Housing Tenure and Type: July

CUF. In CUF in July, residents of single-family houses (83 percent of whom were homeowners) were more likely to have heard about HHW (r = .13) and to have heard through the mass media (r = .13) than were residents of other structures. Apartment (r = -.11) and trailer or mobile home residents (r = -.10) were less likely to have already heard about HHW. Table 8 gives the percentages of respondents living in single-family houses (43 percent) and in other structures (31 percent) who had heard in July of HHW.

Decatur and farmers. The July relationship between having heard of HHW and living in a single-family house was also strong in Decatur (r = .22; 33 percent had heard versus 7 percent of those in other dwellings) and in the farm sample (r = .25). In both samples, respondents in single-family houses (over 80 percent of whom were homeowners) again tended to have heard through the mass media (r = .14 for Decatur; r = .19 for farmers).

Housing Tenure and Type: October

CUF. By October in CUF, there had been an enormous growth in basic awareness among those living in single-family houses, from 43 percent in July to 72 percent in October. Meanwhile, there was a smaller rise in awareness among those living in other structures (up from 31 percent to 45 percent). As a consequence, the correlation between residence in a single-family house and having heard about HHW rose from r = .13 to r = .27. Here the awareness gap associated with housing type is definitely getting much larger.

Decatur. In Decatur, where publicity about HHW presumably consisted mainly of relatively nonusable spillover news from Champaign County, there was no increase in awareness among those living in single-family houses (Table 8). In contrast, there was some observed increased awareness among residents of other structures, who in July seemed to have almost nowhere to go but up in terms of awareness. The result is a total closing of the awareness gap by housing type in Decatur. Whereas the correlation with type of residence was .22 in July, it dropped to zero in October. Caution is necessary here, however. The change is due mainly to reports from a few of the very small number of households living in other dwellings in Decatur.

Farmers. There were also too few farmers living in other structures to permit meaningful comparison of the change in their awareness.

TABLE 8. Percent of Respondents in Various Housing Type and Lifestyle Groups Who Had Heard of HHW, by Sample and Survey Date (Cell sizes in parentheses)

	Champaign/Urbana/ Fringe		Decatur		Champaign County Farmers	
Housing Type or Lifestyle Group	July '87	Oct. '87	July '87	Oct. '87	July '87	Oct. '87
Residence Type:						
Single-family house	43.0[a] (170)	71.8[a] (275)	32.8[a] (40)	34.7 (43)	61.5[a] (56)	78.5 (117)
Other dwellings	30.7 (94)	45.1 (155)	7.1 (2)	34.6 (9)	*	*
Recycling of Cans, Bottles, and Newspapers:						
Recycles all or most	49.6[b] (116)	79.1[b] (163)	31.3 (5)	41.7 (10)	64.5 (20)	91.1[a] (41)
Recycles some or none	31.5 (146)	51.4 (264)	27.6 (37)	33.3 (42)	55.2 (37)	72.9 (78)
Voting:						
Normally votes	43.8[a] (194)	67.1[a] (298)	30.3 (36)	36.5 (42)	58.1 (54)	79.0 (113)
Does not vote	27.7 (70)	46.1 (129)	19.4 (6)	26.5 (9)	*	*

[a] Differs significantly from the next percentage down the column by $p \leq .05$.

[b] Differs significantly from the next percentage down the column by $p \leq .01$.

*Indicates too few cases for reliable percentaging.

Summary. One surmises that there may be a greater sense of responsibility for safely managing materials around one's residence on the part of homeowners and others whose place of residence is shared with no other household or family. This responsibility would create a pragmatic "need to know" that would make receptivity to HHM&W information much greater than in other dwellings. This greater receptivity among those in single-family houses is evident in CUF, where a publicity campaign explicitly sought to provide useful information to those with HHW to dispose of or with HHM to store and handle safely. The findings for farms seem consistent with this. In Decatur, where this information was not particularly useful, there is no special receptivity in single-family houses.

Champaign/Urbana Neighborhoods: July and October

The only patterns of awareness by neighborhood were for north Urbana (a largely middle- to low-income area) to be less aware in both July (r = -.07) and October (r = .07); for southeast Champaign to change from average awareness in July (when there were few UI students in the neighborhood; no correlation) to less aware in October (after the students returned; r = -.10); and for southwest Champaign and southeast Urbana (both largely upper-middle-class areas) to go from average awareness in July (no correlation) to being slightly more aware in October (r = .07 for each neighborhood).

Recycling: July and October

CUF. In CUF in July, recyclers were much more likely than nonrecyclers (r = .20) to have heard about HHW. Having heard about HHW was reported by 50 percent of those who recycle all or most of their cans, bottles, and newspapers, while 32 percent of those who recycle some or none of these materials said in July that they were aware of HHW (see Table 8). Recyclers were more likely than nonrecyclers to have heard about HHW both from interpersonal networks (r = .13) and from the mass media (r = .13). It appears that a general environmental concern characterizes the early-aware in CUF.

By October, the relationship between recycling and awareness had increased from r = .20 to r = .27. As Table 8 shows, this reflects a greater gain in awareness by recyclers (up 29 percentage points from 50 percent to 79 percent) than by nonrecyclers (up nearly 20 percentage points from 32 percent to 51 percent) and resulted in a widening of an awareness gap between recyclers and nonrecyclers. Recyclers seem to be especially receptive to information about problems with HHW.

Decatur and farmers. There was no relationship between recycling behavior and having heard about HHW in Decatur or among Champaign County farmers in July. By October, the gains in awareness in Decatur were so randomly or evenly distributed between recyclers and nonrecyclers that the relationship remained essentially at zero. Once again, this seems to indicate that in the control community of Decatur, where HHW information was largely very general and not particularly useful, the reception is scattered and not especially well received by people who would be ready receptors for useful information of this type.

Among farmers, however, the information available in Champaign County regarding HHW was both useful and somewhat elaborate. It was also targeted to farm-based problems and tied, as in Champaign/Urbana, to ongoing issues about landfill siting and safety and other environmental issues. Not surprisingly, farmers who recycle a lot were the most receptive. The increase in awareness among farmer recyclers was nearly as great (27 percentage points) as it was among the CUF recyclers (where awareness went up 29 percentage points), resulting in a remarkable 91 percent of the farmer recyclers in October reporting prior awareness of HHW (Table 8). This is probably close to the ceiling of attainable awareness in any subgroup. Meanwhile, awareness among the farmer nonrecyclers also went up considerably (to 73 percent from 55 percent), but not quite as far as for the recyclers. The correlation between recycling behavior and hearing about HHW went up from zero in July to r = .15 in October.

Summary. Recyclers are ready receivers of information about problems with HHW. The sense of community responsibility, environmental concerns, and motivations that lead to recycling (Ebreo and Vining, 1987) are similar to some of those that were offered as rationales for concern about HHW during the Champaign County publicity campaign. Recyclers might easily make this connection without the publicity explicitly doing it for them. Yet, receptivity and absorption of the information would seem to depend in part on the specificity and utility of the information. In Decatur, where there was no collection drive and only general publicity, such information as was available received no distinctive recognition by the recyclers.

Voting: July and October

CUF. CUF voters, more often than nonvoters, indicated in July that they had heard about HHW (r = .16). They were also more likely than nonvoters to have heard about it from the mass media (r = .17) as well as from interpersonal networks (r = .09).

By October in CUF, the correlation between voting in local elections and having heard about HHW had risen to r = .21. This means that the percentage gap between voters who were aware and nonvoters who were aware had widened (from a difference of 16 percentage points in July to a difference of 21 percentage points in October; see Table 8). Both groups became more aware of HHW, but a greater share of voters than of nonvoters did so.

Decatur and farmers. In Decatur, voters in July were no different from nonvoters in their likelihood of having heard about HHW. By October, Decatur voters and nonvoters alike had moved in roughly equal steps toward greater awareness, with no special receptivity by either group. The number of nonvoters among farmers was too small for meaningful analysis.

Summary. Voting in local elections shares with recycling a connotation of responsibility for the community and engagement in it. People who say that they are local election voters are also in need of information about their community in order to make voting decisions. These would seem to be the attributes behind the tendency of voters, like recyclers, to be initially more aware of HHW in their community and to become more fully aware as a group as information is made available to them.

Media Sources: July and October

It was thought that the respondent's main source of news and information about local community affairs might have an effect on pre-campaign awareness and on subsequent increases in awareness. Some pre-campaign differences were found, but preferred type of media had little or no effect on changes in awareness.

CUF. In CUF, those who cited radio as their main source of local news in July (Q.19) were also slightly more likely to have heard about HHW (r = .08), and to have heard about it from the mass media (r = .14). Those who cited TV as their main source of local news were slightly less likely to have heard about HHW (r = -.09), but if the TV watchers did remember having heard something about HHW, they were more likely than others to recall hearing about it from the mass media (r = .12). Those who make newspapers their principal source had nearly average awareness and no special source for information about HHW. (See also the percentages in Table 9) It turned out that it made no difference which type of media one relied on. Regardless of whether one relied on newspapers, radio, or TV, there was a rise of approximately 22-25 percentage points in levels of awareness in CUF from July to October. The October survey also revealed that there were no changes of more than a tenth of a point in the correlation coefficient for any of the relationships between media source and having heard about HHW.

In July, the specific radio stations (see Q.21) that were most likely to be listened to by those in CUF who had heard of HHW were the major AM "talk" and "information" stations serving CUF (WDWS-AM and WILL-AM, with r = .24 between preferring one or the other of these stations and having heard about HHW by July). The specific radio stations most listened to by those who had not heard of HHW were the three most popular FM rock music stations serving CUF (WLRW-FM, WKIO-FM, and WPGU-FM, with r = -.22 between preferring one of these stations and somehow hearing about HHW). Table 9 shows that, in July, 58 percent of those who preferred the talk radio stations had heard about HHW, while only 28 percent of those preferring the popular rock music FM stations had heard of HHW.

If the type of radio listened to affected awareness, we would expect a widening gap between the awareness of the talk radio listeners and the rock music radio listeners. It turned out that the gap narrowed, with rock music listeners gaining slightly more in awareness (up 20 percentage points to 48 percent aware) than did the talk radio

TABLE 9. Percent of Respondents Having Various Preferred Media Sources Who Had Heard of HHW, by Sample and Survey Date (Cell sizes in parentheses)

Preferred Media Sources	Champaign/Urbana/ Fringe		Decatur		Champaign County Farmers	
	July '87	Oct. '87	July '87	Oct. '87	July '87	Oct. '87
Main Local News Source:						
Newspaper	39.5[a] (136)	60.2[a] (231)	31.7 (26)	35.1 (26)	63.3 (38)	78.4 (76)
Radio	50.0[a] (32)	74.7[a] (56)	27.3 (3)	43.8 (7)	*	86.7 (13)
TV	31.9 (79)	54.0 (129)	26.5 (13)	32.7 (18)	50.0 (12)	81.8 (27)
Preferred Radio Program Format:						
Talk/information (WILL-AM/WDWS-AM)	57.7[b] (94)	73.8[b] (107)	NA	NA	65.8 (25)	84.1 (53)
Popular music (WPGU, WLRW, WK10)	28.0 (139)	47.6 (271)	NA	NA	56.0 (28)	72.7 (48)

[a] Differs significantly from the next percentage down the column by $p \leq .05$.

[b] Differs significantly from the next percentage down the column by $p \leq .01$.

*Indicates too few cases for reliable percentaging.

listeners (up 16 percentage points to 74 percent). The talk show listeners remained more aware, but by a smaller margin. The October survey also found that there was little meaningful change in the relationships between having heard about HHW and listening to the various types of radio stations ($r = .16$ with talk radio and $-.26$ with rock radio). Radio station preference seems to be more coincidentally related to awareness, perhaps because of a common cause, than it is in itself a cause of awareness.

Choice of a specific TV station or newspaper was found to have no relationship with pre-campaign hearing about HHW. In the post-campaign survey, watching a Decatur-based TV station for local news (WAND, Channel 17) provided a negative impact on awareness ($r = -.12$). This channel did not cover the collection event.

Decatur and farmers. In Decatur and among farmers in July, there was no relationship between having heard about HHW and the respondent's primary media source for local news. Among farmers, the only specific media source having a relationship with having heard about HHW is the option of not listening to radio ($r = -.22$), an effect that disappeared in October. There are no notable relationships between specific media sources for Decatur residents and having heard about HHW.

Overall Summary

Those in all three communities who had already heard something about HHW in July tended to be the better-educated, higher-income, long-standing members of the community who lived in single-family houses and took an interest in the quality of community life through engaging in recycling and voting in local elections. There were no distinctive patterns of media preferences among those who were aware in July other than having some preference for "talk/information radio." The better educated were more likely than the less educated to have heard about HHW by July from interpersonal networks, while older and longer-term residents were more likely than younger and newer residents to have heard from the mass media.

In the target communities for the publicity campaign--CUF and Champaign County farmers--the demographic and lifestyle groups that were most aware of HHW in July were also those that acquired the greatest additional awareness during the campaign. Those groups that were less predisposed to awareness of HHW also generally gained some basic familiarity with the topic of HHW since the publicity campaign inevitably reached some of them as well, but their gain in awareness was less than that of those who were already predisposed. The result was to widen the awareness gap between the higher-status, longer-term, or more community-involved residents and the lower-status, newer, or less community-involved residents.

Preferred media source was not a factor in producing this widening gap. Part of the reason for this may have been that the higher-status groups, already containing a disproportionate number who were aware of

HHW issues, tended to get more information disproportionately from interpersonal contacts. The influence of the mass media was strongest among older and longer-term residents but was not especially affected by the media preferences of the respondents. Mailings and doorhangers did not have as pronounced an effect as might have been expected from their capacity for blanket coverage and were generally less effective than the mass media.

In the comparison community of Decatur, changes in awareness were more random or evenly spread across demographic and lifestyle groups. In Decatur, any available information was of a general nature or described Champaign's event, was not keyed to a Decatur community program, was imported by mass media (principally TV, which received by far the greatest number of HHW information source citations in Decatur), and therefore probably did not reach or relate to the interests of those most predisposed to pick up and use HHW information.

6.2. Heard About an HHW Collection Day?

6.2.1. Descriptive Findings

Respondents in July were asked if they had "heard anything about a special day in your community for the collection of hazardous household waste" (Q.18a and Table C.18). In the October survey, conducted from September 27 to October 11, the question read: "Did you hear anything about a special day earlier this month for the collection of hazardous household waste?" (Q.17a). The discussion of findings regarding how many people heard about the drive show, as hoped for, that the publicity campaign received extensive recognition. With regard to who heard about the drive, the findings closely parallel those with regard to hearing anything at all about HHW.

In July, only 3.2 percent of the CUF sample answered "yes." This may be some confirmation that we actually did conduct the survey before the campaign got into full swing. The limited pre-campaign publicity was mainly in a newspaper article on June 1, cited as a source of their knowledge on this matter by nearly two-thirds of those in CUF who had heard of the collection day. One-fourth of the informed in CUF said that they had heard about the drive on the radio, and one-eighth cited someone at work. Both the percentage who had heard and their sources seem to square with what is known about the pre-campaign publicity (see Chapter 3).

A significantly greater proportion of the farmers in the July survey (9.2 percent) said that they had already heard of the collection day. Their sources were mainly from the Farm Bureau or a newspaper. The percentage who had heard and their sources again would seem to match expectations.

In the July Decatur sample, we found one person who reported having heard about a forthcoming collection day. Considering that Decatur did not have a collection day scheduled or announced, this appears to indicate a comfortingly small amount of positive response bias in at least the Decatur sample.

The October survey found that 44.3 percent of the respondents in the CUF sample and 71.2 percent in the farmer sample had learned about the existence of the collection day sometime during the publicity campaign (Table C.18). Considering that the aim of the campaign was to reach every city household and Farm Bureau farm with, if nothing else, saturation mailings, these percentages of people who had heard about the event may seem somewhat disappointing. On the other hand, it is realistic to acknowledge that publicity and promotion are such common features of everyday life that much of them are ignored. Multiple and repeated messages via various media are typically required to achieve very significant recognition. In this case, the rather sparse publicity certainly generated at least as much recognition as might have been realistically expected.

Among those in the October CUF sample who had heard anything at all about HHW, 75 percent had also heard about the September collection event. That left one-quarter of the aware CUF population whose knowledge of HHW did not include recognition of the existence of a collection event. These people, 15 percent of the entire CUF sample, were probably highly receptive to information about a collection drive, if it had reached their consciousness. Evidently, it did not reach them. This 15 percent must include some who, during or before the campaign, became "educated" about general problems with purchase, use, storage, or disposal of HHM&W.

Among farmers in the October survey, the penetration with information about the drive was more nearly coextensive with basic awareness of issues about HHW. Fully 90 percent of those with basic awareness also had knowledge of the collection event. This may reflect the fact that the farmer publicity campaign was tightly keyed to the event itself and involved little auxiliary education.

In both July and October, those who said that they had heard of a special day for the collection of HHW were asked, "How did you hear about it?" (Q.18b/17b). Hearing about the collection event by October was due principally to the mass media, within which the order of importance was newspapers first, television second, and radio third. That is the same order as the sources for having heard anything at all about HHW. Among farmers, the Farm Bureau was again as important as some of the mass media. Six percent of the farmers also cited "magazines," presumably including the sponsoring Successful Farming and Farm Bureau publications.

A flyer/brochure (or mailings and doorhangers) was the only information source that was more often cited by those who acknowledged knowing about the collection event than by those who reported hearing anything at all about HHW. Mentioning the collection event in the interview probably triggered recall of the flyer or brochure, which was otherwise more easily forgotten. Even with this memory trigger, flyers or brochures remain much less important than the mass media, with recognition by only 9-10 percent of either the CUF or farmer samples.

Interpersonal sources of information about the collection event were surprisingly minimal in the October survey. It is generally well known in social research on influence that interpersonal networks are highly effective, especially during early phases of diffusion of information. The paucity of citations to interpersonal networks would seem to reflect low activation of these influence transmitters. Clubs, workplaces, schools, and the like were not much engaged in this campaign.

In the comparison community of Decatur, there was also reported a significant rise between July and October in public recognition of the existence of a collection day. Nearly 11 percent in Decatur said in the October survey that they had heard about such an event. Because 62.5 percent of these "informed" people cited TV as a source, it can be reasonably assumed that they got their information mainly from the TV channels that expressly seek to serve both communities and that they were therefore citing knowledge about Champaign's collection drive.

6.2.2 Correlates and Explanations: Who Heard About a Collection Day?

Among the respondent attributes presented in Chapter 5, few were significantly correlated with having already heard about a collection day in July. Of course, this must in part be due to the fact that there was little variance to explain in the dependent variable in the July survey.

The October survey was a totally different story. A number of substantial correlations were found. These generally fit the pattern of explanations found for who had gained some basic awareness of HHW by October.

In CUF, having already heard about a collection day was found to be significantly associated with

- being better educated (r = .07 in July; r = .12 in October)
- having higher incomes (r not significant in July; r = .21 in October)
- longer length of residence in the community (r = .09 in July; r = .18 in October)
- living in a single-family house (r = .11 in July; r = .24 in October)
- recycling cans, bottles, and newspapers (r = .09 in July; r = .25 in October)
- normally voting in local elections (r = .10 in July; r = .23 in October)

The increasing size of the correlations indicates that those groups predisposed to knowing about the event in July were also the ones who were most likely to have more of their members become knowledgeable about the September 13th event. These were also the same types of groups--the higher status and more community-involved--who were better informed in general about HHW.

In Decatur, the October survey revealed only one significant correlation, r = .20 with income. In other respects, hearing about the event is, as one would expect, randomly distributed in Decatur.

Among farmers, there were significant relationships with

- longer length of residence (r not significant in July; r = .15 in October)
- having more school-age children in the household (r not significant in July; r = .20 in October)
- being male (r not significant in July; r = .24 in October)
- recycling cans, bottles, and newspapers (r = .20 in July; r = .18 in October)
- listening to talk/information radio (r = .24 in July; r = .20 in October)

There was no correlation among farmers in July between socioeconomic status (education, income, occupation) and having already heard about a collection day. The farmers who, by October, had heard about it tended to be very much like those who had any awareness whatsoever of HHW. This, of course, is to be expected, given that the former were 90 percent of the latter.

6.3. Naming Household Hazardous Materials

Early in the questionnaire, before being told anything about what the researchers thought was hazardous, respondents were asked, "What sorts of products or materials do you think of when you hear the term hazardous household waste?" (Q.5 and Table C.5). Interviewers were not to read a list but were simply to record on a list of possible items provided in the questionnaire what respondents said.

6.3.1. Descriptive Findings: Most People Named Examples

The basic findings include the following:

* Among the CUF sample in July, 80.0 percent cited at least one example of HHW. This was about the same as among farmers in July (75.5 percent) but significantly larger than among the July Decatur sample (70.9 percent).

* By October, the percentage of the CUF sample that cited at least one example rose a statistically significant amount to 84.1 percent. Meanwhile, farmers who could cite at least one example rose a less than significant amount to 81.0 percent and Decatur residents also rose a less than significant amount to 76.0 percent. Given that the percentages are all approaching what must be a ceiling, one cannot expect great changes here. Even the increase in CUF, while significant, matches in magnitude the one in Decatur and may not be more than a normal regionwide rise in basic knowledge about HHW.

* In CUF, the main categories cited in July were household cleaners (25.5 percent), pesticides and poisons (18.6 percent), general purpose cleaners (17.2 percent), bleach and ammonia (10.9 percent), and car motor oil (9.6 percent). In October, the main categories cited and the order and percentages changed to pesticides and poisons (27.8 percent), household cleaners (22.6 percent), lacquer, oil-based paint, and varnish (13.9 percent), paints in general (13.1 percent), and bleach and ammonia (12.4 percent). The October list of mentioned materials corresponds a bit more closely to the lists of HHW mentioned in the publicity campaign.

* In CUF, 46.4 percent of the sample in July and 42.5 percent in October mentioned "other materials," among which the most frequently noted items were, in roughly descending order of occurrence, sewage, garbage, aerosols, and chemicals. Many appropriate as well as inappropriate items or broad categories were mentioned by only one or two respondents--for example, "radon," "tubes in lighting systems," "grease," "discarded food from restaurants," "freon," "grass," or "things that come in cans."

* The July Decatur sample most frequently mentioned household cleaners (17.2 percent) and general purpose cleaners (17.2 percent), followed by pesticides (15.9 percent) and bleach and ammonia (11.9 percent). "Other materials" were mentioned by 35.1 percent of the Decatur sample. The October list was the same, slightly reordered.

* In the farmer sample, the most frequent July mentions were household cleaners (33.7 percent), pesticides (29.6 percent), herbicides (16.3 percent), and general purpose cleaners (14.3 percent). In October, the most frequent mentions were the same four materials, reordering the first two: pesticides (39.9 percent), household cleaners (19.0 percent), herbicides (18.3 percent), general purpose cleaners (16.3 percent), and paints (15.0 percent). "Other materials" also got a substantial number of mentions in both July (30.6 percent) and October (32.7 percent) but significantly fewer than were offered by the CUF sample.

* The average number of materials mentioned by CUF respondents was 1.84 in July and rose significantly to 2.18 in October. This was an average increase of .34 per respondent.

* The average number of materials mentioned by Decatur respondents was 1.36 in July and rose not significantly to 1.65 in October. This is an average increase of .29 per respondent.

* The average number of materials mentioned by farmer respondents was 1.64 in July and rose not significantly to 2.01 in October. This is an average increase of .37 per respondent.

Despite some of the questionable items under "other," these findings indicate that the majority of the public had at least some basic understanding of the concept of household hazardous waste, even before the Champaign County publicity campaign. This understanding has improved during the two months of the publicity campaign, especially in CUF where there was a significant rise in the number of materials named and some slight improvement in the appropriateness of materials named. Yet, Decatur also has an observed rise of nearly the same magnitude, even though it is a statistically nonsignificant rise. Among farmers, the average number of materials cited rose by a greater magnitude than in CUF, but it remained insignificant because of the small samples and large variances. There is, in short, no evidence here of anything more than a very modest educational impact of the publicity campaign on the CUF public's ease in identifying HHW materials. The main finding is of an initial and continuing high capacity to name some HHW materials, even without any (or any effective) educational campaigns.

6.3.2. Correlates and Explanations: Who Could Name Examples of HHW?

Those who named several types of materials when asked for examples of HHW presumably had better familiarity or facility with the concept. We wanted to find out how various demographic and lifestyle groupings of respondents differ in their familiarity or facility with HHW as a concept, and whether and how this facility by different groups changed during the publicity campaign.

Our measure of facility consisted of a count of the number of materials named by the respondent. Although a crude index, it roughly taps the extent to which the respondent has ready familiarity or facility with the concrete meaning of a concept that was just entering public discourse.

CUF

First, for CUF, those with regular facility for naming examples of HHW tended to

- be better educated (r = .25 in July; r = .20 in October)

- have higher incomes (r = .12 in July; r = .19 in October)

- live in single-family houses (r = .06 in July; r = .15 in October)

- recycle cans, bottles, and newspapers (r = .12 in July; r = .19 in October)

- normally vote in local elections (r = .10 in July; r = .16 in October)

- prefer radio for local news (r not significant in July; r = .18 in October)

- listen to talk/information radio (r = .16 in July; r = .07 in October)

- have already heard something about HHW (r = .24 in July; r = .29 in October) and heard about it from both interpersonal networks (r = .24 in July; r = .24 in October) and mass media (r = .19 in July; r = .20 in October)

Among the CUF sample, perhaps the most important factor in naming HHW materials was the respondent's level of formal education. Length of residence and age were not linearly related to facility or familiarity with HHW materials. Examination of cross-tabulations revealed that the middle-aged population had greater facility than the older and younger population, but no "length of residence" cohort emerged as especially more able to name HHW materials.

Except for these qualifications, the usual pattern of civic, community, environmental, and information media involvement is found to be associated with the naming of materials that could be HHW. This was true in CUF both before and after the publicity drive. The correlations generally increased between July and October, indicating that the gains in ease of naming HHW were disproportionately occurring among those in certain groups (especially the higher-income strata, those living in single-family houses, the recyclers, and the voters) where such ease was initially present.

Decatur

In Decatur, the respondent attribute correlates of facility in naming HHW material follow a small but key portion of the same pattern. Those who named materials tended to

- be better educated (r = .26 in July; r = .29 in October)

- have higher incomes (r not significant in July; r = .32 in October)

- live in single-family houses (r = .25 in July; r not significant in October)

- prefer newspapers for local news (r = .16 in July; r = .14 in October) but not prefer TV (r = -.15 in July; r = .18 in October)

- have already heard something about HHW (r = .15 in July; r = .22 in October)

As a comparison group, the Decatur surveys suggest that the experiences in CUF were not especially unique with regard to naming HHW. If this variable taps knowledge, the findings indicate that knowledge grew in roughly the same demographic subgroups in both communities--even though one had a publicity campaign and the other did not. The major difference is that the Champaign population appears to have gained a slightly greater overall facility in naming HHW materials.

Farmers

Finally, among Champaign County farmers, the naming of HHW materials was greater among those who

- were better educated (r = .20 in July; r = .12 in October)

- normally voted in local elections (r = .17 in July; not significant in October)

- recycled cans, bottles, and newspapers (r not significant in July; r = .27 in October)

- preferred newspapers for local news (r = .18 in July; r not significant in October)

- had already heard something about HHW (r = .24 in July; r = .20 in October)

In general, formal education is a major factor in explaining who among the farmers could readily name HHW materials, both before and after the publicity campaign. Increases in this facility among farmers do not seem to be associated with anything, except that recyclers proved to be much more able to name HHW after the drive than before it.

Summary

From the start, the overwhelming majority of the public had enough knowledge about HHW to be able to name examples. Little if any improvement in this ability can be attributed to the publicity campaign in Champaign County. The kinds of materials named as examples appear to be among the most hazardous (pesticides and herbicides) and the most common (cleaners and paints). The groups in the samples that were more likely to name HHW materials were generally the same groups that acquired some awareness of HHW: the higher-status and more community-involved residents. It is with them that initial public cooperation on proper HHW disposal may be most expected.

6.4. Assessments of Hazardousness of Household Materials

Respondents were read a list of 12 types of "materials that some people think are hazardous"--herbicides; pesticides or poisons; oven cleaners; toilet bowl cleaners; varnishes, wood preservatives, or oil-based paints; paint thinners, strippers, or solvents; charcoal lighter fluid or propane gas; car motor oil; gasoline or kerosene; car antifreeze; and car, truck, or boat batteries--and whether they thought each was "not hazardous, somewhat hazardous, or very hazardous" (Q.6 and Table C.6). This measure is perhaps a better indicator of basic public knowledge. It is possible, for example, to compare the public's rankings of materials by hazardousness with more expert opinions on these materials. When we do that, we find that the public has a remarkably sound judgment of the relative hazardousness of these materials.

The percent "don't know," sometimes used in survey research as a measure of awareness on quasi-knowledge questions, turned out to be very low in most instances. In July, "don't knows" ranged from a low of 0.8 percent of the CUF sample assessing the hazardousness of pesticides to a high of 15.9 percent of the Decatur sample assessing "motor oil." Some 25 of the 36 "don't know" entries for July in Table C.6 are below 8.0 percent. In October, the "don't knows" declined for almost every material mentioned and in all three samples. As with naming hazardous wastes, respondents seemed to have greater facility in responding to questions about HHW after the publicity campaign than before it.

Even so, there are some differences among the samples with regard to familiarity, ease, awareness, or readiness to answer. The CUF and farmer samples were generally much more willing to answer with a hazardousness rating than was the Decatur sample, both before and after the publicity campaign.

The findings do not show much difference among the July samples in their average ratings of materials for hazardousness. The only four differences in this respect are the following:

a. CUF gave a more hazardous rating to pesticides than did either of the other two samples.

b. CUF gave a more hazardous rating to thinners or solvents than did Decatur.

c. Decatur gave a less hazardous rating to charcoal lighter fluid or propane gas than did either of the other two samples.

d. CUF gave a more hazardous rating to car motor oil than did the farmers.

In October, CUF residents rated herbicides more hazardous than they did in July, and farmers rated oven cleaners, drain openers, and toilet bowl cleaners more hazardous than they did in October. Farmers in October also rated 6 of the 12 types of materials more hazardous than did the CUF or Decatur samples.

In comparing overall mean hazardousness ratings for all 12 types of materials, CUF rated them on average a 2.39 (nearly midway between "somewhat hazardous" and "very hazardous") in July and an average of 2.42 in October, a nonsignificant change. Decatur gave an average rating of 2.25 in July and 2.34 in October. This was also not a significant change. The average rating given by farmers was 2.32 in July and 2.43 in October, a significant change at $p = .05$. Farmer's sensitivity to hazardousness seems to have been heightened during the period of the publicity campaign. Champaign's and Decatur's overall assessment of hazardousness remained, however, essentially unchanged.

The relative ratings given to each of the 12 types of materials are also interesting. Generally speaking, in both July and October, all samples gave pesticides, herbicides, drain openers, and gasoline average ratings of about 2.5 or slightly above (i.e., midway between "somewhat hazardous" and "very hazardous"). Closely behind were thinners or solvents, which crossed the 2.5 average line between July and October. Materials receiving the lowest mean ratings were car motor oil (just under 2, meaning not quite up to the "somewhat hazardous" level), varnishes, wood preservatives, or oil-based paints (with means between 2.1 and 2.2), and toilet bowl cleaners (with means around 2.2 to 2.3, except for farmers in October with 2.5). In between were car antifreeze (with widely varying averages that themselves average to about 2.3), oven cleaners (2.3 to 2.4, except for farmers), and car, truck, or boat batteries (just above 2.4).

Leaving aside the heterogeneity in some of the questionnaire's categories for classifying and listing materials, the relative ratings given by respondents in any of the samples are not especially out of line with the toxicity ratings developed by Gosselin et al. (1984) and reproduced on posters issued by the Illinois Hazardous Waste Research and Information Center (1987). The evaluations of toxicity in Sittig (1985) are also similar. Some improvements could be made in the public's knowledge of hazardousness, but even a pre-campaign public has some very general realistic sense of the relative hazardousness of these materials.

The precise hazards that the public pictures may include both health hazards and environmental hazards and may involve both immediate and long-range risks. The need to put bounds on the length of the questionnaire prohibited exploration of this issue. What is obvious is that the public has a sense that most HHMs are, in fact, somewhat or very hazardous and that the public tends to differentiate materials by degree of hazardousness in fairly realistic and soundways.

Some groups in the public are more likely to rate the 12 types of materials as more hazardous than are other groups in the public. The most important difference that we found was by gender. For example, in the October CUF sample, 41 percent of the women gave an overall average hazardousness rating of 2.5 or more to the 12 materials, while only 29 percent of the men did so (the correlation with gender was $r = -.21$, with male = high score), The number of school-age children in the household was also associated with higher overall hazardousness ratings (r = .16 in CUF in October), as was the percentage of elderly persons (aged 65 or over) in the household (r = .12 in CUF in October). Similar relationships for gender, number of school-age children, and percentage of elderly persons were found for the other samples and survey dates.

6.5. Summary

Even before the HHW collection drive publicity campaign began in Champaign County, there was a surprisingly high level of basic awareness in the public regarding what HHW is and how hazardous HHM can be. Basic awareness expanded through an additional 20 percent of the population during the two-month interval while the publicity campaign was conducted in Champaign County. In CUF, among farmers, and even to some extent in Decatur where there was some media spillover via TV, this expansion of basic awareness is largely traceable to the publicity campaign and to the specific media, farmer's networks, and other promotional activities that were used. Except for the farmers, interpersonal networks were not effectively utilized in the publicity campaign. The campaign worked best through the mass media and had modest impacts through direct mail and flyers.

During the period when the publicity was going on, facility in naming HHW also expanded in all three communities, and the public became more severe in its judgment of the hazardousness of a list of 12 of the most familiar types of HHM&W. Some of these changes, up to the level experienced in Decatur, were probably not attributable to the publicity campaign in Champaign County but were instead potentially attributable to widespread and generalized trends experienced in all communities. There was no doubt some overflow of information from the Champaign campaign to Decatur, which would shift some causal attribution back to the campaign. Clearly, however, the changes in the facility of naming HHW and in giving hazardousness ratings are not so pronounced and distinctive in Champaign County that a unique cause for them is required.

Flowing across the country through virtually all media have been periodic waves of news stories, general information, and concern about toxic materials and waste disposal problems in America. The Long Island garbage barge was very much in the news during the period of the Champaign County publicity campaign. Congress was holding hearings on toxic waste. There were always new local and regional stories about landfill problems. New books and magazine articles were coming out about toxics around our communities, and some of these addressed problems around the home as well. It is, therefore, no surprise that we picked up in our Decatur sample (and coincidentally in CUF and among the farmers) some evidence of the impact of those widespread waves of information and concern.

The Champaign County publicity drive no doubt was successful in raising basic awareness of HHW as a topic of public discourse. It probably did so by riding the rising tide of concern in the news and among the aware and informed public. The campaign led to heightened recognition that HHW was a topic about which public discussion and program action was being undertaken. When we asked whether people had heard about HHW or about the collection drive, we were literally asking whether they were aware of any of this public discussion and program action. In doing so, the campaign helped give focus to a general rise in consciousness about HHW, facility to discuss HHW, and concern about the hazardousness of HHW.

In terms of how and to what groups awareness spread, we found one basic pattern. Awareness of HHW&M emerges first and spreads most rapidly among those with higher socioeconomic status, longer length of residence, home ownership or living in a single-family house, and greater involvement in community concerns.

We measured community involvement in terms of recycling behavior and voting in local elections. In assuming these responsibilities and those of home ownership, with the commitment to the community that comes with length of residence, and with the human and material resources that come with higher status, the more established and active citizens of each community have become those most prepared by prior knowledge to give heightened attention to problems in dealing with HHM&W. These established citizens seem likely to be the "innovators" who participate in any newly offered collection program first and who will help to diffuse concern and knowledge outward to a larger circle of the previously unaware.

As awareness and knowledge spreads among the leaders and innovators, there is a slower rate of information gain by lower-status groups, newer residents, and those with less community involvement. This creates an increasing disjunction or separation of ways of life within the community as it relates to knowledge about and capacity to participate responsibly in dealing with HHM&W. What is needed is an intensified educational campaign aimed at those who are initially slow to respond.

Considering the basic state of public awareness of HHM&W and public perception of their hazardousness, it seems likely that the communities might be more prepared within at least some groups to take responsible action than waste management planners might have imagined. Indeed, as we will see in Chapter 8, most of the public is searching for ways to deal with HHW responsibly.

It therefore becomes a matter of some concern that no communities in Illinois had, until September 1987, an HHM&W program addressed to the public's concerns. What was done with the hazardous materials brought to homes, and to the hazardous waste that they generated, was left to the devices of a public a significant portion of whom were surprisingly aware and concerned but had no responsible disposal option for most materials. The question of what the pre-program public did with what quantities of HHM&W is addressed in the next chapter.

CHAPTER 7

QUANTITIES OF HHM&W AT OR AROUND HOMES, GARAGES, AND SHEDS

Behind any concern about hazardous materials in homes and about the risks and wastes that come from them is a basic assumption that there is in fact a significant amount of these materials in or around people's homes. What we know or think we know about the quantity of HHM at homes will be crucial in any assessment of the potential for risks and wastes from HHM. Yet, there have been little or no data on this to date. Discussion about the magnitude of the HHM&W problem has proceeded from assumptions. One purpose of this study was to provide something more than assumptions. Our search for some sound data on the quantities of HHM in homes and of HHW from homes is the focus of this chapter.

The survey questionnaires contained a major series of items (Q.7-9c) aimed at assessing how much of various kinds of hazardous materials people had recently had around their homes and whether they currently had it stored on hand for future use, had recently disposed of any of it, or wanted to dispose of any of it. This chapter reviews basic findings on these questions and looks into which demographic and lifestyle groups had the greatest quantities around the home or had disposed of the greatest quantities. This chapter also assesses the degree of change in these quantities during the publicity campaign from July to October.

The measure of quantities is simply the respondent's report of the number of full or partially full containers of various types of HHM&W that were either currently at the home or had recently been disposed of from the home. Great care was taken to ensure that the respondent was answering in terms of full or partial containers and not empty ones. This is one distinction that sets this study apart from any earlier household surveys on the handling of HHM&W. Respondents in earlier surveys may often have answered in terms of how they handled their empty containers.

Another major distinction for the present study is that this is the first attempt to provide an actual numerical count of quantities of containers of HHM&W. It is a count that builds from individual categories of materials, preserving the reliability of building aggregate counts from material-specific counts.

There are, nonetheless, some limitations in the numbers reported here. Respondents often had to give their best estimates of how many full or partial containers they had around the home, would like to get rid of, or had thrown out. Although this no doubt resulted in some recall errors, there is no reason to believe that these errors are anything but random and that the resulting aggregate averages or counts are anything but reasonably accurate. Respondents also may not always have known what others in the household had done with these materials, and this could produce some undercount.

A note on estimates of volume. A count of full or partial containers does not take into account the size of these containers. Farmers, for example, probably have larger containers of certain kinds of materials (especially pesticides and herbicides and maybe drain openers and motor oil) than do most city residents. Average container size also differs by type of material.

Since it is useful in policy-making circles to have our findings about containers translated into estimates about volume, we devised a formula for doing so (developed in Appendix E). This formula begins with a range of "typical" container sizes as found in retail stores and measures the space taken up by a rectangular prism in which each "typical" container might fit. Wherever we report estimates of the volume of HHM around homes and of the volume of HHW improperly disposed of, great caution should be taken to recognize that we are estimating the space taken up by the containers and not the volume of the material itself.

A note on estimates of total number of households. Some findings on quantities are projected to the total population of households in the sampled communities, yielding estimated counts of the number of households having certain materials around the home or having disposed of certain materials. These estimates are based on procedures discussed in Section 4.3 of Chapter 4 and in Section D.2 of Appendix D. These procedures boil down to the following rules of thumb: For percentages of the total samples, each tenth of a percentage point represents 37.9 households in CUF samples, 35.0 households in Decatur samples, and 1.8 households in farmer samples. This assumes 37,895 households in CUF, 34,950 households in Decatur, and 1,792 farmer households in Champaign County.

Preview outline. The analysis of quantities in this chapter includes the following topics:

a. An analysis of the number and percentage of households that had had, "in the past 12 months," at least some of each of the 12 types of materials about which respondents were asked: herbicides; pesticides or poisons; oven cleaners; drain openers; toilet bowl cleaners; varnishes, wood preservatives, or oil-based paints; paint thinners, strippers, or solvents; charcoal lighter fluid or propane gas; car motor oil; gasoline or kerosene; car antifreeze; and car, truck, or boat batteries.

b. An analysis of the number and percentage of households that "currently" (at the time of the survey) had each of the 12 types of materials.

c. An analysis of the quantities of materials "currently" at homes. This includes an analysis of correlates of demographic and lifestyle attributes, showing the types of households that had the greatest and the least quantities.

d. An analysis of the quantities of materials that were inappropriately disposed of in the course of a year, including an analysis of demographic correlates.

e. An analysis of the quantities of unwanted materials "currently" at homes that respondents wanted to get rid of. This includes an analysis of demographic correlates.

7.1. Types of HHM at the Home, Garage, or Shed During the Past 12 Months

In both July and October, respondents were asked, "In the past 12 months, have you had any containers of (ITEM) around your home, garage, or shed?" (Q.7). The items were the 12 types listed above. Basic findings are presented in Table C.7. The following discussion begins with a selective summary of findings for July, with particular emphasis on the findings for CUF. Then, the changes from July to October are discussed.

7.1.1. July Findings

CUF

* In CUF, the least widely found type of HHM (that we asked about) was extra car, truck or boat batteries. Even so, a surprisingly high 11.6 percent of CUF households, or 1 out of every 8 or 9, reported in July having had extra car, truck, or boat batteries around their home, garage, or shed during the past 12 months. This projects to 4,396 CUF households with extra batteries during the past year.

* The most prevalent HHM in CUF in July were toilet bowl cleaners. Fully 73.8 percent, or nearly 3 out of 4 respondents, reported having had toilet bowl cleaner around their home during the past 12 months, which projects to 27,970 households in July having had toilet bowl cleaner around.

* Herbicides had been at over a one-third (34.9 percent) of CUF respondent households (or at a projected total of 13,227 households) some time during the past 12 months.

* Pesticides had been at over one-half (55.4 percent) of CUF respondent households (or at a projected total of 20,997 households) some time during the past 12 months.

* Varnishes, wood preservatives, or oil-based paints had been at 46.7 percent of CUF respondent households (or at a projected total of 17,699 households) some time during the past 12 months.

* Car motor oil had been at 60.0 percent of CUF respondent households (or at a projected total of 22,740 households) some time during the past 12 months.

* The other six types of materials--charcoal lighter fluid or propane gas, gasoline or kerosene, car antifreeze, drain openers, paint thinners, and oven cleaners, in that order--were reported to have been in, around, or at homes for between 69 percent and 40 percent of the CUF households during the past 12 months, at the time of the July survey. Projections to get the total number of CUF households may be obtained by recalling that each tenth of a percentage point represents 37.9 households.

* There was an average of 5.9 types of materials (or about half of the 12 listed types) found in each CUF home some time during the previous 12 months, at the time of the July survey.

Decatur

* In comparison to CUF, the percentage of households in Decatur in July having had these hazardous materials during the past 12 months was significantly larger for herbicides and for gasoline/kerosene. One effect of these differences was to give Decatur a slightly larger average number of materials per household (6.3) during the 12 months prior to July 1987.

Farmers

* For each of the 12 types of materials, a larger proportion of Champaign County farmer households than of either city's households reported having had some around in the past 12 months. (Most of these differences were statistically significant.) Over 80 percent of farmers had had in the previous 12 months some pesticides, toilet bowl cleaner, extra car motor oil, and extra gasoline/kerosene; over 75 percent had had some herbicides, charcoal lighter fluid or propane, and car antifreeze around; 67 percent had had varnishes, oil-based paints, or wood preservatives; and 36.5 percent had had extra car, truck, or boat batteries at or around their homes, garages, or sheds.

* An average of 8.2 of the 12 materials (or over two-thirds) were to be found at Champaign County farms some time during the previous year. This alone surely provides farmers considerable familiarity with these materials, as well as a need to find ways to handle and dispose of them properly.

7.1.2. Changes by October

CUF

- From July to October, there were statistically significant but modest declines in the percentage of CUF households that had possessed four types of HHM during the previous 12 months: toilet bowl cleaner, car motor oil, gasoline/kerosene, and car antifreeze (compare Column d[1] with Column f[1] in Table C.7). The greatest of these declines was 7.8 percentage points for gasoline/kerosene, down from 58.1 percent of households in July to 50.3 percent in October. There is no self-evident reason why these changes should be attributed to the publicity campaign regarding an HHW collection day.

- Staying about the same from July to October was the percentage of CUF households with each of the other eight types of materials during the previous 12 months.

- CUF households in October reported having had an average of 5.7 types of HHM during the previous year, down slightly (and not significantly) from the average of 5.9 in July.

Decatur

- In Decatur, there were no statistically significant changes in the reported presence of any of the 12 types of HHM during the past 12 months. The mean number of types of HHM at Decatur homes during the past 12 months rose a nonsignificant amount from 6.3 in July to 6.6 in October.

- Decatur continued to have more households with herbicides and with gasoline/kerosene than in CUF, and added pesticides, toilet bowl cleaners, and herbicides to this list.

Farmers

- Among farmers, there was a significant increase in the percentage of households that had possessed drain openers and paint thinners, strippers, or solvents during the previous 12 months.

- The mean number of types of HHM at farm households during the previous 12 months rose a nonsignificant amount from 8.2 to 8.6.

- Farmers in Champaign County continued to have a greater percentage of households using or possessing every type of material (except oven cleaners) than either of the city samples.

7.2 Types of HHM Currently at the Home, Garage, or Shed

For each type of HHM that respondents said that they had had in the past 12 months, they were then asked, "About how many containers of (ITEM) do you currently have?" (Q.8a). Table C.8a(1) gives the percentage of households "currently" having some of each of the 12 materials for both the July and October surveys. These percentages closely parallel, at a reduced level, those given in answer to Q.7 regarding possession during the past 12 months. Differences between the samples follow the same pattern, with farmers again possessing more of most HHM than do either of the city samples.

Findings of HHM "currently" in homes at the time of the surveys are discussed below, beginning with the July survey and emphasizing the findings for CUF.

7.2.1. July Findings

CUF

* Considering first the least prevalent HHM, in the July survey extra car, truck, or boat batteries were found at 1 out of every 13 CUF households, or 7.6 percent of the total, which projects to a total of 2,880 households in CUF. Compare this with 11.6 percent of CUF households, or a projected total of 4,396, that in July reported having had batteries during the past 12 months (Section 7.1.1 and Table C.7). This means that 4.0 percent of all households (11.6 percent minus 7.6 percent) or 34 percent of those who had possessed batteries during the past 12 months somehow got rid of--sold, traded in, gave away, or disposed of--all of their batteries during the 12 months prior to July. An additional number may have gotten rid of some of their batteries. We did not ask specifically about batteries that were sold, traded in, or given away. We did ask about those that were disposed of, finding in July that 2.0 percent of all households reported that they had disposed of some batteries in the previous 12 months. Section 7.4 discusses quantities disposed of.

* Considering the most prevalent HHM, in July toilet bowl cleaners were found at 62.6 percent of CUF homes, or at a projected total of 23,729 households. This "current" toilet bowl cleaner coverage was 85 percent of the coverage over the previous 12 months. By the time of the July survey, approximately 15 percent of the households that had possessed toilet bowl cleaner during the previous 12 months somehow got rid of all of it, probably by using or disposing of it.

* Herbicides were found at 26.0 percent of CUF homes in July, or at a projected total of 9,854 households. This was 74 percent of the households that had possessed herbicides some time during the previous 12 months. The remaining 26 percent of one-time

possessers somehow got rid of--used, sold, gave away, or disposed of--all of the herbicides that they had possessed some time during the previous 12 months.

- Pesticides were found at 47.8 percent of CUF homes in July, or a projected total of 18,116 households. Of the households that had possessed pesticides some time during the previous 12 months, 14 percent somehow got rid of--used, sold, gave away, or disposed of--whatever they had.

- Varnishes, wood preservatives, or oil-based paints were found at 39.8 percent of CUF homes, or a projected total of 15,084 households. Of the households that had possessed these materials some time during the previous 12 months, 15 percent somehow got rid of--used, sold, gave away, or disposed of--whatever they had.

- Car motor oil was found at 39.1 percent of CUF homes, or a projected total of 14,819 households. Of the households that had possessed motor oil some time during the previous 12 months, a surprisingly large 35 percent somehow got rid of--used, sold, gave away, or disposed of--whatever they had.

- In July, the average number of types of materials "currently" in CUF households was 4.5. This was 78 percent of the average number (5.9) reported in July to be at these homes some time in the past 12 months.

Decatur

- The July Decatur findings for "current" possession closely parallel those for "past 12 month" possession in Decatur, at a reduced level.

- The average number of types of materials "currently" in Decatur households was 5.0, according to the July survey. This was 79 percent of the average number (6.3) reported in July to be at these homes some time during the previous 12 months.

Farmers

- Farmers' "current" possession was also lower than their "past year" possession, but there was slightly less tendency toward depletion than in the cities.

- In July, the average number of types of materials "currently" at farmers' households was 6.8. This was 83 percent of the average number (8.2) reported in July to be at these farms some time during the previous year.

7.2.2. Changes by October

CUF

* Except for a statistically significant decline in "current" possession of gasoline/kerosene between July and October (Table C.8a(1)), there were no notable changes in terms of whether homes had any of the 12 materials. The mean number of materials "currently" in homes remained essentially constant at 4.5 in July and 4.4 in October.

Decatur

* There was one statistically significant increase in the percentage of Decatur households "currently" having HHM, with the percent having oven cleaner going up from 29 percent to 41 percent. There were eight other observed increases that were not statistically significant, and three observed nonsignificant decreases. The net result is a nonsignificant increase in the mean number of types of materials "currently" in homes (from 5.0 in July to 5.4 in October).

Farmers

* Although there were no statistically significant changes for farmers, the nonsignificant changes suggest that some farmers may have depleted their supply of herbicides and pesticides from July to October, while increasing their supply of almost every other type of HHM. The net result is no change in the mean number of types of materials "currently" at farms (6.8 in July and 7.1 in October).

7.3 Quantities of HHM Currently at the Home, Garage, or Shed

The question of how much HHM is in homes is of fundamental importance in understanding the potential for generating HHW. The distribution of HHM among different types of homes is equally important for understanding where there is the greatest prospect for the generation of HHW. This section provides findings on the quantity and distribution of HHM among homes.

7.3.1. Descriptive Findings: How Much HHM Is Out There?

Quantities per Home by Type of Material

Table C.8a(2) gives detailed findings on the number of containers of HHM that respondents in the three samples said that they currently had, for each of the 12 types of materials. The table is rich with information that should be reviewed closely with regard to each type of material. It is not feasible to conduct such a review in the discussion here. Instead, several specific topics will be addressed using the table.

Table C.8a(2) is useful for estimating the average number of containers of HHM&W at the homes that have these materials. It is also useful for estimating the total number of containers of HHM&W at all homes in each community. Using data from both the July and October surveys, the following are examples of the quantities of selected types of HHM in CUF:

* Among the 7.6 percent of the CUF homes that had extra car, truck, or boat batteries in July, the average number of batteries per home that had them was 1.38. This works out to a projected total of 3,974 extra batteries at the estimated 2,880 households having them in CUF. By October, the average number of batteries per home that had them had risen nonsignificantly to 1.45.

* Among the 62.6 percent of the CUF homes that had toilet bowl cleaners in July, the average number of containers per home that had them was 1.23. This works out to a projected total of 29,187 containers of toilet bowl cleaner at the estimated 23,729 households having them in CUF. By October, the average number of containers of this material per home that had them had risen nonsignificantly to 1.34.

* Among the 26.0 percent of the CUF homes that had herbicides in July, the average number of containers per home that had them was 2.35. This works out to a projected total of 23,157 containers of herbicides at the estimated 9,854 households having them in CUF. By October, the average number of containers of this material per home that had them had risen nonsignificantly to 2.55.

* Among the 47.8 percent of the CUF homes that had pesticides in July, the average number of containers per home that had them was 2.02. This works out to a projected total of 36,594 containers of pesticides at the estimated 18,116 households having them in CUF. By October, the average number of containers of this material per home that had them had risen nonsignificantly to 2.09.

* Among the 39.8 percent of the CUF homes that had varnishes, wood preservatives, or oil-based paints in July, the average number of containers per home that had them was 4.97. This works out to a projected total of 74,967 containers at the estimated 15,084 households having them in CUF. By October, the average number of containers of these materials per home that had them had risen nonsignificantly to 5.20.

* Among the 39.1 percent of the CUF homes that had car motor oil in July, the average number of containers per home that had them was

6.66. This works out to a projected total of 98,695 containers at the estimated 14,819 households having them in CUF. By October, the average number of containers of car motor oil per home that had them had fallen nonsignificantly to 6.25.

In comparing the three communities with regard to the quantities of specific types of materials currently on hand, the single example of herbicides is illustrative. Since little if anything changed from July to October, only the July findings are noted in the following comments:

- In CUF, the community having the lowest percentage of households with herbicides (26.0 percent) in July, the average number of containers per household among households having them was 2.35. In Decatur, where more homes had herbicides (38.8 percent of the sample), the average number of containers per home that had them was lower (1.74). On Champaign County farms, where the greatest percentage of households had pesticides (53.6 percent), the average number of containers per household having them was also highest (5.27). It seems likely that these farm containers were not only more numerous per household or farm but also larger and held more material.

- This pattern of differences among the samples (Decatur with the lowest average, farmers highest, CUF in between) applies as well to pesticides and varnishes, etc., for both the July and October surveys.

- For most of the rest of the materials, a different pattern prevails. Specifically, CUF generally had the lowest percentage of homes having the materials and the lowest average number of containers per possessing home, farms were the highest on both measures, and Decatur fell in between on both measures.

- For any one of the 12 hazardous materials, farms were on average nearly one-and-one-half times more likely to have some of that material "currently" on hand in July or October than were urban residents in either Champaign or Urbana. An illustrative example is that pesticides were found at 70.9 percent of farms in July but at only 49.7 percent of CUF households in July, for a ratio of 1:43. This is the same number as the average of all 48 such ratios of farms to cities for the 12 materials and two survey dates.

- For any one of the 12 hazardous materials, farms that had some of it had on average nearly twice the number of containers of it than did those households in either city that had some of it. (The average ratio here was 1:75.)

Total Quantities of HHM&W per Home

From the data on which Table C.8a(2) is based, it is possible to calculate the total number of containers of HHM&W in each household, summing across all 12 types of materials. Note that this count applies to all households, not just those with some materials. We find, in fact, that there were very few households with little or no HHM&W around. Only 11 percent of CUF households, 7 percent of Decatur households, and 2 percent of the farmers had as few as two, one, or no containers of HHM&W around their homes, garages, or sheds in July. Remarkably, these percentages did not change in October.

We found that the average total number of HHM&W containers in all CUF homes was 10.4 in July and 10.2 in October, with standard deviations of 15.3 and 12.4, respectively. In Decatur homes, the average number of HHM&W containers was 11.2 in July and 12.7 in October, with standard deviations of 11.5 and 16.9. Among Champaign County farms, the average was a huge 25.3 in July and 28.7 in October, with large standard deviations of 34.4 in July and 28.9 in October. None of the changes in means from July to October was statistically significant at $p = .05$ or less.

All of these averages are sufficiently large and the materials comprising them so clearly diverse that they are evidence of a pervasive presence of HHM in the homes of these communities. Nearly every household has a substantial quantity of HHM in or around their homes.

Estimated Volume of Noncompacted Containers of HHM per Home or Farm

If we assume that the average noncompacted container in cities takes up between 90 and 190 cubic inches of space (see Appendix E), then the average urban home in either CUF or Decatur (at about 11 containers per home) has between .6 and 1.2 cubic feet of space devoted to containers of HHM. If farm containers average between 125 and 225 cubic inches per noncompacted HHM container (see Appendix E), then farms (with about 27 containers per farm household) on average have between 2.0 and 3.5 cubic feet of space devoted to containers of HHM.

Quantities and Volume of HHM in the Communities as a Whole

Another perspective on the total quantity of noncompacted containers of HHM at homes is to calculate a single overall figure for an entire community. Summing over all households in CUF and projecting to the community as a whole, we find that there were an estimated 393,440 containers of HHM at homes in CUF in July and 387,350 containers in October. If all of these containers at CUF homes were taken to one place, and if we again assume the previously stated range of average container sizes, the assembled noncompacted containers would fill between 750 and 1,600 cubic yards.

For Decatur, the estimated total number of HHM containers at homes was 391,510 in July and 443,950 in October. The October count of noncompacted containers would fill between 850 and 1,800 cubic yards.

For Champaign County farm households, the estimated total number of containers of HHM at these farms was 45,373 in July and 51,470 in October. The October count of noncompacted containers would fill between 135 and 250 cubic yards.

7.3.2. Correlates and Explanations: Who Has the Most HHM?

One objective of this project was to provide an understanding of the types of households that have greater quantities of HHM&W. In this section, we look at correlates of the total number of containers of all 12 types of listed HHM&W materials that people said that they had at their homes.

Because this variable in raw form is highly skewed by a few cases with very large numbers of containers, the actual measure used in computing the Pearson correlation coefficients is the natural log of total number of containers in or at the home. This assumes that each additional increment among extremely high values is of increasingly less additional interest. This log transformation procedure has the effect of redistributing variance more evenly across the distribution so that the entire distribution is being explained, instead of primarily explaining the variance due to a small set of extreme cases. Often, as was generally true here, better fits (or higher correlations) with explanatory variables are also obtained by this procedure.

All correlation coefficients that are listed below are significant at p = .05 or less.

CUF in July and October

In the CUF sample, those "currently" having high quantities of HHM&W tended to

- have higher incomes (r = .31 in July; r = .36 in October)
- be better educated (r = .13 in July and in October)
- be male (r = .11 in July; r = .07 in October)
- have longer length of residence in the community (r not significant in July; r = .12 in October)
- have large household size (r = .19 in July; r = .14 in October)
- have more school-age children in the household (r = .13 in July; r = .14 in October)
- live in single-family houses (r = .29 in July; r = .32 in October)
- normally vote in local elections (r = .16 in July; r = .20 in October)

- recycle cans, bottles, and newspapers (r = .11 in July; r = .14 in October)

- be disproportionately from SW Champaign (a middle- and upper-middle-class neighborhood) (r = .16 in July; r = .10 in October) or from the CUF fringe (r = .09 in July; r = .11 in October), but not from SE Champaign (many older homes and student residences) (r = -.10 in July; r = -.11 in October)

- prefer newspaper for local news (r = .17 in July; r not significant in October)

- have already heard something about HHW (r = .14 in July; r = .17 in October)

- have heard about the September 13 collection drive (not applicable in July; r = .16 in October)

In general, those in CUF who had the most HHM&W around their homes seem to be the economically upscale, larger-household people in single-family houses and those who are active in recycling and vote in local elections. In short, their profile is similar to that of people who had heard something about HHW. Interestingly, men reported slightly higher quantities than did women. Changes from July to October were not generally great enough, or consistent enough, to suggest that substantial or meaningful changes in the types of homes having the largest and least quantities of HHM.

Decatur in July and October

In Decatur, the respondent attributes having significant correlations (p = .05 or less) with quantities of HHM "currently" in the home were the following:

- having higher income (r = .42 in July; r = .39 in October)

- being better educated (r = .25 in July; r = .18 in October)

- being younger (r = -.11 with age in July; r = -.22 in October)

- being male (r = .24 in July and in October)

- having large household size (r = .28 in July; r = .36 in October)

- having more school-age children in the household (r = .17 in July; r = .22 in October)

- living in a single-family house (r = .41 in July; r = .37 in October)

- normally voting in local elections (r = .26 in July; r = .14 in October)

- preferring newspapers for local news (r = .17 in July; r = .23 in October)

- having already heard something about HHW (r = .16 in July; r not significant in October)

For Decatur, then, larger quantities of HHM&W again tended to be found at the homes of socioeconomically upscale, family-rearing residents of single-family houses. And again, men reported higher quantities around the home than did women. Differences between July and October indicate that younger respondents and those with larger households or with more school-age children were acquiring more HHM&W materials (or the opposite types of households were diminishing their supplies) during the summer and early fall. Other changes were generally small and in the direction of producing a more even or random distribution of HHM&W among households.

Farmers in July and October

Finally, among farmers, the respondent attributes that correlated with quantities "currently" around the home were the following:

- shorter length of residence in the community (r not significant in July; r = -.19 with length of residence in October)

- younger age (r = -.37 with age in July; r = -.29 in October)

- being male (r = .32 in July; r = .43 in October)

- having large household size (r = .30 in July; r = .18 in October)

- having more school-age children in the household (r = .27 in July; r not significant in October)

- having few elderly persons in the household (r = -.42 with percent elderly in July; r = -.30 in October)

- having already heard something about HHW (r not significant in July; r = .17 in October)

Whether or not farmers heard about the collection event was not correlated with the quantity of HHM&W at farms. Those who had the most were not selectively reached. The promotion of the event among farmers, like the promotion among CUF residents, was designed as blanket coverage of everyone. We saw in the last chapter that some farmers were more likely than others to report getting information about the event, but as we see now, this selectivity was not a function of how much HHM&W farmers had.

As implied by their absence from this list, not significant in relation to HHM&W quantities at farmers' homes were any of the socioeconomic variables and the voter and recycling variables. Farmers tended to report having more HHM&W materials if they were male and in their younger, family-rearing years. These are basically the same correlates as those for having heard something about HHW, which itself is associated with the quantity possessed. The farmers with more HHM&W materials were a little more aware than others of public discourse about those materials. On the other hand, to repeat the previous point, they were not especially likely to have heard of the collection event.

7.3.3. A Note on Gender Effects

There was a surprisingly high positive relationship between "male gender" and quantities of HHM&W at the home for farmers, a fairly high positive relationship in Decatur, and a small positive relationship in CUF. These findings on the apparent effect of gender raise several questions:

a. Are the gender "effects" largely spurious due to other variables, such household size and age, determining both gender of available respondent and quantities of HHM&W? To test this, gender was correlated with quantities, controlling for all other significant variables in the two farmer samples. Gender remained significantly correlated under these controls, with partial correlation coefficients of .18 in the July sample and .22 in the October sample.

b. Are the gender "effects" suppressing or spuriously generating other effects? To test this, a set of partial correlations were run between the number of containers "currently" at farm households and each of the demographic and lifestyle attribute variables. Controlling for gender, the significant ($p = .05$ or less) first-order partial correlations between currently possessed quantities and attributes for farmers are as follows:

- shorter length of residence in the community (r not significant in July or October)
- younger age ($r = -.35$ with age in July; $r = -.36$ in October)
- having large household size ($r = .27$ in July; $r = .22$ in October)
- having school-age children in the household ($r = .27$ in July; r not significant in October)
- having few elderly persons in the household ($r = -.42$ with percent elderly in July; $r = -.32$ in October)
- having already heard something about HHW (r not significant in July; $r = .18$ in October)

Comparison with the zero-order correlation coefficients shows that controlling for gender makes very little difference in other relationships. Parallel analyses for Decatur and CUF had similar results. Separate analyses for men and women showed similar patterns of relationships between quantities and demographics for each gender. We therefore conclude that the relationships between quantities of HHM&W at homes and demographic attributes are valid and not spurious due to gender.

c. The third question about gender "effects" is not fully answerable with the present data. Are the gender effects due to differential perceptions or knowledge by gender, or do they reflect a material reality of lower quantities at those farms and households for which we had women respondents and higher quantities at farms and households for which we had male respondents? To explore this, some additional methodological analyses were conducted with the survey data and are reported in Appendix F. For reasons discussed in Appendix F, some combination of both interpretations of gender effects is most credible. There is a potential for an undercount of "male-role" HHM&W (e.g., motor oil) by women. Mitigating this possible slight undercount from women, we have sound methodological reasons generally to accept the reports by both genders as being equally valid representations of the quantities at their homes.

7.3.4. Explaining Quantities of Specific Types of Materials at Homes

To get some idea of what kinds of homes had the greatest quantities of particular types of materials, four separate analyses were done: for garden and pest products (pesticides and herbicides combined); for paint products (oil-based paints, varnishes, wood preservatives, paint thinners, strippers, and solvents combined); for car motor oil; and for car, truck, and boat batteries. Only the highlights of the main findings about distribution among household types are reported.

Garden and Pest Products

These materials were most frequently found in higher-income homes for the city samples. In CUF, the correlations were r = .26 in July and r = .19 in October. These products were more likely to be found in southwest Champaign than in other parts of the cities. The October CUF sample showed that those with higher quantities of these materials were slightly more likely than others to have heard about the collection event (r = .13). In Decatur, the correlations with income were r = .32 in July and r = .31 in October. Among farmers, the correlations with income were not significant. Instead, it was once again the younger farmers (r = -.23 with age in July; r = -.29 in October) who had the greatest amount of herbicides and pesticides. There was a negative correlation of r = -.21 with having heard about the collection event among farmers in October.

Paint Products

These materials follow essentially the same pattern, with income again most important in cities and age most important among farmers.

In CUF, the correlations with income were r = .18 in July and r = .29 in October. Southwest Champaign again disproportionately had these materials. The correlation with having heard about the collection event in October was r = .12. In Decatur, the correlations with income were r = .32 in July and r = .22 in October. Among farmers, where again the correlations with income were not significant, it was the younger farmers (r = -.26 with age in July; r = -.24 in October) who had the greatest amount of paint products. There was no correlation with having heard of the collection event among farmers in October.

Motor Oil

The quantity of car motor oil around CUF homes was slightly but positively correlated with income (r = .09 in July; r = .12 in October), was similarly correlated with the number of school-age children in the household and living in a single-family house, and was associated with little else. There was no association in CUF with neighborhood of residence or with having heard in October of the September collection event. In Decatur, the quantity of motor oil around homes followed a very similar pattern as in CUF. Among farmers, again it was younger respondents (r = -.12 in July; r = -.11 in October) who reported larger quantities of car motor oil. There was no association with having heard of the collection event.

Batteries

The distribution of car, truck, and boat batteries among households in CUF was not notably associated with any household attribute. In Decatur, batteries were more frequently found at the homes where income was higher in July (r = .25) but not in October, when age was more important (r = -.16). Among farmers, more batteries were reported around large households in July (r = .30) but not in October. In none of the October samples was there a relationship with having heard of the collection event.

Summary

In general, many of the same factors account for the distribution of these four specific kinds of material among types of households as was found to explain distribution of all materials in aggregate. In cities, those of economic means have more HHM&W, while among farms, those who are at early stages of their farming career have the greatest quantities.

7.3.5. Extreme Cases Analysis: Households with Very Large Quantities

The analysis of quantities has, to this point, used log transformation techniques that reduce the emphasis on extremely large quantities by collapsing the distribution. It may nonetheless be true that hazardous waste collection efforts might be targeted to those with the very largest quantities of HHM&W on hand. To assess what types of households these might be, analyses were done comparing households and farms with 20 or more containers of any single type of material with all others.

In CUF in July, there were only 31 households (4.4 percent) that had 20 or more containers of any single type of material. These 31 "extreme case" households differed significantly from the remaining 95.6 percent of the sample in these three respects:

- They had a lower percent elderly in the home (mean of 2 percent elderly in the "extreme case" group and mean of 12 percent in the other group).

- More lived in single-family houses (77 percent of the "extreme case" group, only 55 percent of the other group).

- They did not live in southeast Champaign (none from the "extreme case" group, while 19 percent of the rest of the CUF sample came from southeast Champaign).

By October, the number of extreme cases in CUF (20 or more containers of any type of material) had risen to 43 (5.9 percent). The extreme cases were not being reduced by the collection drive. These 43 cases differed from the remaining 94.1 percent in the following ways:

- They had higher incomes (average of $37,600 versus $26,500 for the larger group).

- They had more school-age children in the household (mean of .86 versus larger group mean of .37 school-age children).

- More of them lived in single-family houses (74 percent versus 51 percent).

- There was no difference in likelihood of having heard about the collection event.

In Decatur, there were no significant differences on household attributes between those six households with 30 or more containers of any type of material in July and the remaining 96 percent. In October, there were nine "extreme cases" in Decatur (or 6 percent). They differed from the larger group in having a higher average income (mean of $50,000 versus mean of $29,000), a larger average household size (mean of 4 versus mean of 2.7), and larger number of school-age children at home (mean of 1.6 versus mean of .6).

The July farmer sample had 17 of the 98 (17 percent) in the sample that were extreme cases. These differed significantly from the others only in the having a much smaller percent elderly present (mean of 6 percent elderly among the extreme cases versus 28 percent among the others). In October, the extreme cases among the farmers had risen to

38 of the 153 (24.8 percent) in the sample. Again, there was no decline in the extreme cases as a result of the collection drive. These October extreme cases differed from the other farmers in being better educated (mean of 13.4 years of education versus 12.6), having lived in the community a shorter length of time (mean of 30 years versus 39 years), being younger (mean of 47 years versus 54 years), having a larger household size (mean of 3.2 versus 2.5), and having more school-age children (mean of .77 versus mean of .30). There was no difference between farmers with extremely high quantities in October and other farmers with regard to having heard about the collection event.

7.4. Disposal of HHW

Before considering how much of the quantities that people have on hand they want to get rid of, we next take up the question of the quantities that people have disposed of. This is because previous disposal practices ("during the past 12 months") may help explain how much is currently being held awaiting disposal.

7.4.1. Descriptive Findings: How Much Is Disposed Of?

Respondents were asked whether they had "disposed of any partial or full containers" of each of 12 types of hazardous materials "in the past 12 months" (Q.9a). If they had, they were asked, "Approximately how many partial or full containers of (ITEM) did you dispose of in the last 12 months?" (Q.9b) and "How do you normally dispose of (ITEM)?" (Q.9c). Table C.9 gives very detailed findings on how many partial or full containers of hazardous material have been disposed of in various ways by households in CUF, Decatur, and the Champaign County farm community.

It should be noted that the vast majority of households reported that they did not dispose of partial or full containers of hazardous materials in any way. In both July and October, some 82 percent to 100 percent, depending on the community sampled and the material asked about, either (a) said that they had not disposed of the asked-about material during the past year or (b) were not asked whether they had disposed of it because they had earlier said that they never had any of this material at or around their home, garage, or shed during "the past 12 months." In most of the 72 instances (for 12 materials x 3 samples x 2 surveys), at least 96 percent of the city and farm households were nondisposers. Not having had any of the material during the previous year, as Table C.7 reminds us, contributes much to these high percentages of nondisposers.

It should also be clear that of households that have had HHM around, most carry out one or more of the possible alternatives to disposal. They either use the material to depletion, store unused portions for possible later use, give it or sell it to others, leave it in their former homes when they move, let it evaporate down, hold onto it without knowing how to dispose of it properly, or in some other way avoid disposing of it. This means, of course, that very small percentages of the population account for each of the materials that are disposed of either properly or improperly.

7.4.2. Disposal of Car Motor Oil: An Example

As a way of illustrating how to interpret the tables, we focus on the disposal of car motor oil (Table C.9a.b(i)):

* According to the July survey, the hazardous material that the greatest proportion of households disposed of was car motor oil, which was disposed of some time in the past 12 months by 10.0 percent of the Decatur sample, 14.7 percent of the CUF sample, and 17.7 percent of the farmers. In CUF, 36 percent of the disposers, or just 5.2 percent of the total sample, either recycled their motor oil or dropped it at a "disposal collection site," by which they may mean recycling. Had we asked explicitly about recycling, rather than disposing, the percentage of recyclers might have been higher.

* Since our concern was disposers, we found that 6.0 percent of the total CUF sample in July disposed of their oil by sending it to the landfill in their garbage, 1.3 percent poured it down the sewer, and 1.7 percent dumped it on the ground. This comes to 9.0 percent of the sample (or 41 percent of the disposers) being inappropriate disposers of motor oil, or a projected total of 3,411 households in CUF. There may be as many as 531 additional inappropriately disposing households, based on the 1.4 percent of the sample who said that they disposed of motor oil by "other" means or did not know or say how they disposed of it.

* Changes in CUF by October were slight and not statistically significant. Whatever else the promotional campaign for the collection drive did, it did not significantly change either appropriate or inappropriate disposal of motor oil.

* In Decatur in July, 20 percent of the car motor oil disposers, or 2 percent of the total sample, "disposed" of motor oil by recycling or dropping at a collection site. Another 53 percent of disposers, or 5.3 percent of the total sample, disposed of motor oil by inappropriate means; this projects to 1,855 Decatur households. There may be as many as 945 more inappropriately disposing households, based on the 2.7 percent saying "other" or "don't know" or giving no answer about their means of disposal. There were no significant changes from July to October, although there was a nonsignificant observed shift from dumping on the ground and "other" to throwing in the garbage or recycling.

* Among farmers in July, a relatively large 53 percent of the car motor oil disposers, or 9.4 percent of the total sample, recycled or dropped their motor oil at a collection site. A relatively small 16.7 percent of the disposers, or 3.2 percent of the total

sample, were inappropriate motor oil disposers, projecting to a total of 57 Champaign County farms. There may be as many as 93 more inappropriately disposing farms, based on the 5.2 percent of the farm sample that said "other" or "don't know" or gave no answer to how they disposed of motor oil. There was a significant increase from July to October in the reported percentage of farms disposing of motor oil during the previous 12 months. Most of that increase went to recycling, but the increase in recycling was barely less than significant (at p = .05 or less).

These data indicate that there is a much lower car motor oil disposal rate by households than is said to be the case by the most thorough known prior study (Shull et al., 1987). The Shull study found that 58 percent of their respondents in a multi-community survey claimed to change their own car motor oil. Shull also found that, while just over one-fourth of the oil-changers report somehow reusing their oil, most (or just over 35 percent of the total sample) transfer it to someone else for recycling or dispose of it. This contrasts with a 10 percent to 18 percent disposal rate in our surveys (see the first asterisked point in Section 7.4.2.) The discrepancy between Shull and this study begs for explanation.

Shull's mail survey had a response rate of 23 percent. Recipients of the questionnaire were clearly informed that it focused on changing motor oil and on what happens to the oil. If, as commonly happens with mail surveys, those who responded were very disproportionately self-selected from among those who had a special interest and involvement in the subject of the survey, it is not unlikely that the 77 percent who were nonrespondents had a much lower rate of changing their own motor oil and, therefore, of disposing of oil or recycling it.

If the Shull study had obtained a high enough response rate to ensure little or no response bias, the percentage who change their own oil could well have been found to be half (or less) of the 58 percent found in the relatively small set of people actually responding to Shull. This would bring Shull's estimate of potential disposers more nearly in line with our October survey results.

7.4.3. Disposal Rates for Other Types of HHW

Returning to Table C.9, each of the 11 other types of materials may be analyzed in a manner similar to that illustrated with the example of motor oil. There are 36 possible comparisons of change in rates of disposal from July to October (12 materials x 3 samples). In examining these comparisons, there will be found no instances in which there was a statistically significant decline in disposal rates. The 16 instances of observed small, nonsignificant declines could, and probably did, all occur by chance from sampling error. Disposal rate changes for specific types of disposal practices for each of the 12 materials are also within the range of sampling error (discounting those where the Ns are less than 5).

7.4.4. Rates of Inappropriate Disposal

Inappropriate disposal may be defined as those disposal methods for HHW that are not recommended by Gosselin et al. (1984). Specifically, inappropriate disposal consists of any of our 12 types of HHM being sent with ordinary garbage to the landfill, dumped on the ground, or (except for drain cleaners, toilet bowl cleaners, and car antifreeze) poured down the sewer. For present purposes, only a very broad summary of the inappropriate disposal of all 12 types of materials taken together will be presented.

CUF in July and October

* In CUF in July, there were an average of 1.20 partial or full containers of HHW per household that were said to be inappropriately discarded in the past 12 months. This projects to a total of approximately 45,500 containers inappropriately disposed of by all CUF households during the past 12 months.

* By October, the average number of inappropriately disposed of containers per household in CUF had dropped to .84, a decline that does not quite attain statistical significance at $p = .05$ or less. (It is significant at $p = .08$.) The October rate projects to a total of 31,900 containers inappropriately disposed of by all CUF households in the past 12 months. Because of the ostensible 9-month overlap between the "past 12 months" reported in July and the "past 12 months" reported in October, this decline cannot reasonably be considered a consequence of educational spinoffs from the collection drive, although the campaign may have contributed to it.

* Because the two CUF surveys do not indicate a change from July to October, the two CUF samples may be pooled to calculate a single and more reliable estimate of the total quantity of HHW inappropriately disposed of by CUF households "in the past 12 months." Doing this, we get a mean per-household inappropriate disposal rate of 1.02 containers and a projected total of approximately 38,600 containers of HHW inappropriately disposed of "in the past 12 months."

* In the CUF sample, 24.3 percent of all households in July inappropriately disposed of some partial or full containers of HHW. This works out to a projected total of 9,210 CUF households. The October rate of household participation in inappropriate disposal was down slightly but nonsignificantly to 22.1 percent.

Decatur in July and October

* From the July survey of Decatur, we find that an average of .55 containers per household were disposed of improperly in the past

12 months. That works out to approximately 19,200 containers inappropriately disposed of by the entire Decatur household population during the previous 12 months.

* By October, Decatur's per-household annual rate of inappropriate disposal had risen to 1.21. Perhaps because of the large variances around the means and because of the small samples sizes, the rise was not significant (at p = .05 or less) and does not attain significance until p = .15 or less. This larger reported October rate projects to approximately 42,300 containers per household.

* Pooling the Decatur samples, we get a per-household inappropriate disposal rate of .88 and an estimated citywide total of approximately 30,750 inappropriately disposed of containers "in the past 12 months."

* In the July Decatur sample, 19.2 percent of the households inappropriately disposed of some partial or full containers of HHW. This works out to a projected total of 6,720 Decatur households. By October, the rate of household participation in inappropriate disposal had declined a nonsignificant amount to 18.6 percent.

Farmers in July and October

* Among Champaign County farmers in the July survey, an average of .3671 containers per farm household were disposed of improperly in the past 12 months. That works out to approximately 660 containers inappropriately discarded by farmers during the previous 12 months.

* By October, farmer households were reporting an average of 1.14 containers per household being improperly disposed of in the past 12 months. This represents a substantial observed increase, but again it is not statistically significant in part because of the large variances and small sample sizes. The reported October disposal rate works out to approximately 2,040 containers inappropriately discarded by farmers during the previous 12 months.

* The pooled farmer samples had a mean per-household inappropriate disposal rate of .83 and an estimated total of approximately 1,490 inappropriately disposed of containers "in the past 12 months."

* In the farmer sample, 10.2 percent of the households inappropriately disposed of some partial or full containers of HHW. This works out to a projected total of 183 Champaign County farm households. In October, the farmer households inappropriately disposing was up to 20.3 percent of the total. This change was significant at p = .05 or less.

Another way to view annual inappropriate disposal is to calculate it as a percentage of the total quantity of HHM that is found at homes or farms at a given point in time. This tells us what portion of materials now in homes or on farms can be expected to end up being inappropriately disposed of. Of course, consumers will buy and use more than they currently have, but the percentage of what they have that is inappropriately disposed of remains an interpretable and useful index of rates of generating misdirected HHW.

Finally, for policy application it is usually helpful to have an estimate of waste in terms of volume. We can provide a rough estimate of the volume of inappropriately disposed of HHW using procedures discussed in Appendix E.

For CUF, the pooled estimate of 38,600 misdirected containers of HHW is 9.9 percent of the total pooled estimate of 390,100 containers of HHM&W at homes. Assuming an average of 90 to 190 cubic inches per container, these inappropriately disposed of containers would take up 74 to 158 cubic yards if they were all taken to one place.

For Decatur, the pooled estimate of 30,750 misdirected containers of HHW is 7.4 percent of the total pooled estimate of 417,700 containers of HHM&W at homes and would collectively take up between 59 and 125 cubic yards if they were all taken to one place.

For Champaign County farms, the 1,490 misdirected containers of HHW is 3.0 percent of the total pooled estimate of 49,000 containers and would take up 4 to 7 cubic yards if they were all taken to one place.

These counts indicate that much remains to be done to achieve widespread and fairly complete diversion of hazardous materials from inappropriate destinations, especially in the cities.

7.4.5. Correlates and Explanations: Who Disposes of It Inappropriately?

In the following correlational analysis, we use the natural log transformation of the number of containers inappropriately disposed of.

CUF in July and October

For CUF, the quantities of materials that households disposed of inappropriately were correlated ($p = .05$) with the following household attributes:

- being male ($r = .06$ in July; $r = .25$ in October)

- shorter length of residence in the community ($r = -.10$ with length in July; not significant in October)

- younger age ($r = -.14$ with age in July; $r = -.12$ in October)

- living in a trailer or mobile home in July (r = .08), but living in a single-family house in October (r = .13)

- currently having a large number of containers of HHM at or around the home, garage, or shed (r = .17 in July; r = .23 in October)

Not correlated with inappropriate disposal by CUF households were all of the socioeconomic status variables (including education), the "voter" or "recycler" variables, neighborhood or city location or residence, whether or not the respondent had previously heard anything at all about HHW, and the facility to name HHW-type materials without prompting.

In CUF, younger age appears to be the single most important measured respondent attribute in accounting for inappropriate disposal. Even that is not strong. In general, inappropriate disposal seems rather widely distributed with little evident change in pattern of distribution from July to October.

In a startlingly simple finding that reflects what is probably an often overlooked fact of waste disposal in general, CUF households with large quantities of HHM around also tended to dispose of some of it inappropriately.

Decatur in July and October

Among Decatur residents, inappropriate disposal was associated with the following attributes:

- having large household size (r = .15 in July and October)

- giving a high average "hazardousness" rating to the 12 types of HHM (r = .17 in July; r not significant in October)

- currently having a large number of containers of HHM at or around the home, garage, or shed (r = .17 in July; r = .49 in October)

For Decatur, large households and those having lots of HHM are the ones most likely to be inappropriately disposing of some HHW. Again, we have the simple but useful observation that those who generate lots of waste have a need to dispose of some of it and, in lieu of other options, may do so inappropriately.

Farmers in July and October

For Champaign County farmers, the quantities of materials that households inappropriately disposed of were correlated (p = .05) with the following respondent attributes:

- shorter length of residence in the community (r = -.17 with length in July; r not significant in October)

- younger age (r = -.25 with age in July; r not significant in October)

- recycling cans, bottles, and newspapers (r not significant in July; r = .16 in October)

- normally not voting in local elections (r = -.39 with voting in July; r not significant in October)

- currently having a large number of containers of HHM at or around the home, garage, or shed (r = .19 in July; r not significant in October)

Champaign farmers, like CUF residents, are at greatest risk of inappropriate disposal if they are young. In addition, farmers who are less well tied into the community through voting or residential tenure are more likely to dispose of HHW inappropriately.

7.4.6. Summary

In general, it may be said that those with imminent needs for appropriate disposal options are also those who live in cities, have higher socioeconomic status, and have more HHM around the home. If they live on farms, their levels of inappropriate disposal are relatively low but not trivial, a larger proportion than among city residents have quantities of HHW in storage awaiting disposal, and no special subgroup among them is more likely to have HHM awaiting disposal. Both the urban and the farm groups that have HHW tend, fortunately, already to be better informed on HHM&W matters. They are tuned-in targets for an educational campaign.

Those who have inappropriately disposed of HHW in the last year tend to be found among two groups: (a) somewhat-informed, higher-status persons whose large households and higher consumption levels have generated HHW awaiting disposal and (b) younger, ill-informed, and uninvolved households that have large quantities of HHM around. These two quite different groups, then, should be among the targets of an educational campaign.

7.5. Unwanted Materials on Hand

7.5.1. Descriptive Findings: How Much Is Unwanted, Awaiting Disposal?

If respondents to Q.8a reported that they currently had one or more containers of an item, they were asked, "Is any of it unwanted that you would like to get rid of?" (Q.8b and Table C.8b). In general, the reported percentages of households having HHW that they wanted to discard seem rather small. They range from none of the farm households saying in July that they had herbicides that they wanted to discard to 16.4 percent of the farm households saying in October that they had extra batteries that they wanted to discard.

Some of the differences between July and October in Table C.8b probably reflect seasonal variations. In fall, farmers would have less use for herbicides than they would in July. Fall cleanups and reconditioning of equipment might also generate a supply of used batteries and paints. Some of what was once stored in anticipation of a use might become unwanted by fall. Yet, the percentage of households wanting to get rid of any particular type of material remains fairly small in both July and October.

These small percentages translate into much larger estimates of the total number of households in the population who have some HHW of any type that they want to discard. We will look at these numbers shortly.

The following discussion also refers to the potential total quantities or number of containers that respondents wanted to get rid of. The use of the qualifying term "potential" can be understood by examining Questions 7, 8a, and 8b in the July or October questionnaires (see Appendix B). Given the structure and wording of the questions, we do not generally know whether the respondent wanted to get rid of all of the material of a given type or only a portion of that material. The numbers of containers reported below are actually for the available supply of those particular types of materials stored or kept at the home from which respondents would like to select some or all to discard.

This procedure therefore yields an overcount of unwanted containers except where a respondent wants to get rid of all of the material of the types listed. In light of this deficiency, no attempt is made to add even greater uncertainty by translating "unwanted containers" into "volume of unwanted HHW." The number of "unwanted containers" are reported only to give some outside estimate of how much HHW could be collected in a collection drive that fully depletes households of the types of HHM of which there is some that they do not want.

The stronger or less-qualified findings here are the first ones reported for each sample, namely, the number and percentage of households having some hazardous waste that they wanted to get rid of.

CUF in July and October

* Among CUF households in July, 8.7 percent had some containers of HHW that they wanted to discard. This projects to 3,300 households in CUF with hazardous waste that they would like to get rid of. The October percentage was larger, but not significantly so, at 11.6 percent, projecting to 4,396 households.

* At the 3,300 households with unwanted HHW in July, there was an average of 8.7 containers of HHW of the specified types that they

wanted to get rid of. At the 4,396 households in October, this average was 7.9.

* Within the entire community of nearly 38,000 households, the average per-household number of containers of the type that CUF respondents would like to get rid of was .76 in July and .92 in October, a statistically nonsignificant (p = .05 or less) increase. Pooling the two CUF surveys, the average potential number of unwanted containers per household was .84.

* This pooled average projects to a CUF communitywide potential of 31,860 containers awaiting disposal. In comparison, the pooled-sample estimate of the number of containers inappropriately disposed of "in the past 12 months" was 38,600.

* This potential number of containers awaiting disposal in CUF is 8.2 percent of the total HHM&W containers in homes. The remaining 81.8 percent or more are being stored with a more definite expectation of having a use for them.

Decatur in July and October

* In Decatur, 10.7 percent of households, or a projected total of 4,050, had HHW awaiting disposal in July. For October, the percentage dropped slightly and nonsignificantly to 9.3 percent, for a projected total of 3,520 households.

* At the 4,050 households with unwanted HHW in July, there was an average of 5.5 containers of HHW of the specified types that they wanted to get rid of. At the 3,520 households in October, this average was 4.7.

* Within the entire community of nearly 38,000 households, the average per-household number of containers of the type that Decatur respondents would like to get rid of was .59 in July and .44 in October, a statistically nonsignificant (p = .05 or less) decrease. Pooling the two Decatur surveys, the average potential number of unwanted containers per household was .51.

* This pooled average projects to a Decatur communitywide potential of 17,700 containers of HHW awaiting disposal. This compares with a pooled-sample estimate of 30,750 containers inappropriately disposed of in Decatur "in the past 12 months."

* This potential number of containers awaiting disposal in Decatur is 4.2 percent of the total HHM&W containers in homes.

Farmers in July and October

* Among farmers, 18.6 percent of households, or a projected total of 333 farms in Champaign County, had HHW to discard in July. In

October, this had risen nonsignificantly to 21.3 percent, or 381 farm households.

- At the 333 farm households with unwanted HHW in July, there was an average of 6.2 containers of HHW of the specified types that they wanted to get rid of. At the 381 farm households in October, this average was 10.0 containers.

- Among all 1,792 farm households, there was an average in July of 1.16 containers per farm household awaiting disposal, which changed nonsignificantly to 2.12 containers per household in October. The pooled average was 1.74.

- This pooled average represents an estimated potential total of 3,118 containers. In comparison, the pooled-sample estimate of the total number of containers of HHW inappropriately disposed of by farmers "in the past 12 months" was 1,490.

- This potential number of containers awaiting disposal from Champaign County farms is 6.4 percent of the total HHM&W containers at those farms.

- Assuming 125 to 225 cubic inches per container, the potential amount awaiting disposal from farms would fill 8 to 15 cubic yards.

Summary

Homes and farms had an enormous supply of HHM&W of which some or all was awaiting disposal in July. Statistically, these homes and farms had the same supply in October. There is no evidence here of depletion. To have achieved depletion, however, would have required a program capable of accepting deliverables from 3,300 CUF households and 333 Champaign County farms (based on the July survey), with the received materials numbering up to 8.7 containers per delivering CUF household and 6.2 containers per delivering farm household. In lieu of an appropriate disposal program capable of collecting such a huge quantity from so many households, the only remaining options are for the stored but unwanted containers of HHW to be either patiently kept in storage or inappropriately disposed of.

7.5.2. Explanations: Who Wants to Dispose of HHW?

The percentage of households having some HHW that they wanted to dispose of was fairly small in each sample in both July and October. The question that we posed was whether this percentage differed among different demographic or lifestyle groupings of households. It was pointless to try to explain the quantities of HHW that these households wanted to dispose of, given the uncertainties of measurement. Therefore, the following analysis compares demographic and lifestyle groupings in terms of the percentage of households in each grouping that has some HHW awaiting disposal. Significance was tested using chi square (corrected for 2 x 2 tables) and the p = .05 or less level.

CUF in July and October

Households with higher incomes and respondents with better education were significantly more likely to have HHW that they wanted to dispose of. For example, in July only 4.5 percent of the households with 1986 income under $20,000 had some HHW that they wanted to get rid of, compared with 10.7 percent of the households with $20,000-$40,000 income and 15.5 percent of households with income over $40,000. The October percentages for these three income categories were 4.9 percent, 13.3 percent, and 22.0 percent, respectively. The widening spread suggests increasing production of stored HHW by higher-income households from July to October. For education, findings are parallel and significant. By October, 16.8 percent of those respondents with a four-year college degree or more had HHW to dispose of, compared with only 8.8 percent of those with less education. This was up from 12.0 percent and 5.9 percent, respectively, in July.

CUF households with middle-aged respondents were more likely to have HHW to dispose of. In July, 7.3 percent of those aged 35 or under, 11.7 percent of those aged 36-59, and 8.0 percent of those aged 60 or over said that they had some HHW to dispose of. While these differences were not significant in July, the same pattern became stronger and the differences were significant in October when the percentages were 7.3 percent (aged 35 or under), 20.2 percent (aged 36-59), and 9.3 (aged 60 and over). There was a sharp rise in production of stored HHW by households having middle-aged respondents.

Those living in single-family houses were significantly more likely to have HHW to dispose of (10.8 percent in July, 17.1 percent in October) than were those living in apartments or other structures (6.1 percent in July, 5.5 percent in October). The greatly widening spread indicates a concentration of mounting HHW production in single-family houses.

Household size and the presence of elderly persons or school-age children in the household were not significantly related to having HHW to dispose of, for both July and October.

While voting in local elections was not significantly related to having HHW, recycling was. In July, 14.0 percent of those in CUF who recycled all or most of their cans, bottles, and newspapers also had HHW in storage awaiting disposal, while only 6.2 percent of those who recycled some or none had HHW that they wanted to dispose of. This difference was statistically significant. In October, the difference had lessened enough to be nonsignificant.

In July, those who relied on television as their major source of local news were significantly less likely to have HHW awaiting disposal (5.6 percent) than were those who relied on other sources for local news

(10.7 percent). This difference disappeared by October. In July, those who listened most often to talk/information radio were significantly more likely to have HHW to dispose of (13.9 percent) than were those who listened most often to music radio (7.0 percent). In October, these percentages rose to 18.4 percent and 9.0 percent, respectively, and the difference remained significant.

Viewed from another perspective, of those in CUF with HHW to dispose of in July, 57 percent preferred newspapers for local news, 16 percent preferred radio, and 23 percent preferred television. By October, 60 percent of those with HHW to dispose of preferred newspapers, only 11 percent preferred radio, and 29 percent preferred television. In both July and October, those who had HHW to dispose of were numerically divided evenly between listeners to talk/information radio and listeners to music radio.

Those who have more HHM&W are also those who have some that they want to dispose of. Among those households in July that had seven or more containers of HHM "currently" at the home, 14.8 percent had some to dispose of, while only 3.2 percent of those with fewer than seven containers of HHM had some HHW to dispose of. These percentages changed to 21.4 percent of those with large quantities of HHM having some HHW to dispose of and 3.1 percent of the low-quantity households having some HHW to dispose of. Those with large quantities in July were almost five times as likely to have some to dispose of than were those with low quantities, and in October they were seven times as likely. These differences are all statistically significant.

Previous inappropriate disposal of HHW also predicts having some more HHW around that one wants to dispose of. Of those in CUF who inappropriately disposed of some HHW during the previous year, 15.1 percent in July and 25.0 percent in October had an additional amount of HHW in storage awaiting disposal. In comparison, of those who had not inappropriately disposed of HHW during the previous year, only 6.4 percent in both July and October had more HHW awaiting disposal.

In one of the most reassuring findings of this study, people who had heard about the collection event were likely to be those who had HHW to dispose of. Those who had heard about the collection event by the time of the October survey were in fact more than twice as likely to have HHW that they wanted to dispose of (17.2 percent) than were those who had not heard of the collection event (7.1 percent). The publicity about the collection event was disproportionately reaching this very important target population, those who had HHW in storage awaiting disposal.

The people who were more knowledgeable about HHW were also those who were holding onto HHW that they wanted to get rid of. Specifically, those who could name more than one HHW product without prompting were more likely to have HHW to dispose of (15.3 percent in July, 18.0 percent in October) than were those who could name only one or none (6.4 percent in July, 7.9 percent in October).

Of perhaps greatest importance, those in the October CUF survey who had heard something about HHW prior to that survey were more likely to have HHW to dispose of (14.9 percent) than were those who had not heard anything about HHW before the October survey (6.7 percent). This represents a reversal from July, when only 7.4 percent of those who had heard anything at all about HHW were holding onto some unwanted HHW and a significantly larger share (11.7 percent) of those who had heard nothing about HHW were holding onto some of it. It appears from this interesting reversal that the publicity and educational campaign may have disproportionately reached those who were holding onto unwanted HHW, and possibly slightly increased their number. If the long-range effect is to deter further inappropriate disposal, the campaign will have had a very important effect, indeed.

In summary, the most important factors in whether CUF households have HHW to dispose of are affluence and living in a single-family house, along with having lots of HHM&W around the home. It certainly makes sense that those with the resources to accumulate a large supply of HHM. those with the house maintenance responsibilities that call for use of many types of HHM, and those who, therefore, have large quantities of HHM around are also going to be those who transform a portion of their supply into waste.

Since a disproportionate share of those who have HHW to dispose of are also those who inappropriately dispose of HHW, this group is a target of some special urgency to reach. Presumably, the undesirable option of transferring stored HHW to the trash can remains a possibility, especially for those who have done so in the past.

Potentially reducing the exercise of this undesirable option, there is strong evidence here of success in reaching this appropriate target group of HHW-holding households with information about the collection event and with information about HHW in general.

Decatur in July and October

All of the demographic and lifestyle variables found to be associated with having HHW to dispose of in CUF were also found to have similar patterns of relationships in Decatur for both July and October. That is, higher-status, middle-aged respondents and those living in single-family houses were observed to have a greater percentage with HHW awaiting disposal than were other respondents and types of residences. However, all but one of these relationships were statistically nonsignificant. The sole exception was education in the October survey. In this one case, the relationship was very strong indeed. While 25 percent of those with a four-year college degree or more had HHW to dispose of, only 5 percent of those with less education had any HHW to dispose of.

Once again, those who had larger quantities of HHM around the house were also more likely to have some to dispose of than were those with lesser amounts of HHM around the home. Of the high-quantity households, 16.5 percent in July and 14.1 percent in October had some unwanted HHW; of the low-quantity households, 3.1 percent in both July and October had some unwanted HHW.

Also as with CUF, those who inappropriately dispose of some HHW were much more likely to have more HHW in storage awaiting disposal (31.1 percent in July, 23.1 percent in October) than were those who had not inappropriately disposed of HHW in the previous year (7.3 percent in July and 6.4 percent in October).

Only one significant difference occurred in Decatur regarding the relationship between awareness of HHW and having HHW to dispose of. In October, a large 22.2 percent of those who had heard anything at all about HHW prior to the survey also had some HHW to dispose of, while only 3.1 percent of those who had heard nothing about HHW also had some of it to dispose of. Whatever spillover publicity or education reached Decatur was clearly disproportionately reaching those who had HHW to dispose of, or it was convincing those that it reached to hold onto HHW rather than dispose of it. The educational impact or effective targeting of publicity found in CUF was at least equally present in Decatur in this respect.

Instead of affluence, it is education that joins HHM quantities around the house to provide the best explanations for unwanted HHW awaiting disposal in Decatur households. The principle holds in Decatur, as in CUF, that those who have HHM want to dispose of some HHW. There is also in Decatur, as was less strongly present in CUF, evidence that those who dispose of some HHW inappropriately are holding some additional HHW that they would like to get rid of. Environmental and waste disposal planners would obviously want to provide these waste generators with an approved disposal option for the materials that they want to get rid of before they inappropriately do with it what they have done with other HHW in the past. Perhaps they will now hold onto their HHW and await appropriate disposal options, in light of the fact that those with unwanted HHW were hearing information about HHW from the mounting publicity even in this control community.

Farmers in July and October

Among farmers, none of the demographic or lifestyle attributes were significantly associated with having HHW to dispose of, both in July and in October. Nor were there interesting patterns among the nonsignificant findings. Having HHW to dispose of tends to be randomly distributed among farmers. This is true even with regard to media preferences. As a consequence, blanket promotion among farmers was probably the best strategy for reaching the appropriate ones who had materials to get rid of.

There was an observed but statistically nonsignificant relationship among farmers between having large quantities of HHM around the farm homesite and having some to dispose of. Having inappropriately disposed of HHW in the past as well as having heard about HHW or about the collection event also bore no relationship with having HHW to dispose of.

7.6. Summary

The amount of HHM&W in homes is perhaps not as great as some have feared, but it is nonetheless substantial and very widely distributed. In the cities of CUF and Decatur, we found that an average of 6 of the 12 types of hazardous material had been in each home sometime during the previous 12 months, with 4 to 5 of the 12 types "currently" being in homes. Among farmers, an average of 8 to 9 of the 12 materials had been on each farm during the previous 12 months, while 7 of the 12 were "currently" in homes. Toilet bowl cleaner was most prevalent (currently in 63 percent of CUF homes), while pesticides (48 percent of CUF homes), varnish and oil-based paints (40 percent), car motor oil (39 percent), herbicides (26 percent), and auto or boat batteries (7.6 percent) were less prevalent.

Generally, for any of the 12 materials, farmers were one-and-one-half times more likely than city households to have some of it. Also, those farms with some of any given material had, on average, nearly twice the number of containers per farm than did city households.

Very few homes had no HHM&W "currently" present. Only 11 percent of CUF homes, 7 percent of Decatur homes, and 2 percent of the farms had no HHM&W. The average total number of HHM&W containers in homes was just over 10 per home in CUF, approximately 12 per home in Decatur, and 27 per home on farms. In volume, the noncompacted containers of HHM&W in city homes would take up .6 to 1.2 cubic feet of space, while on farms it would take up 2.0 to 3.5 cubic feet of space.

In general, those in CUF and Decatur who had the most HHM&W around their homes seem to be the economically upscale, larger-household people in single-family houses and those who are active as voters in local elections and (for CUF only) in recycling of bottles, cans, and newspapers. In short, their profile is similar to that of people who had heard something about HHW, and, in fact, the high-quantity possessors were more likely to have already heard something about HHW. Among farmers, younger respondents and again those with larger households had more HHM&W on hand. Interestingly, men reported higher quantities than did women, especially among farmers. For CUF and the farmers, changes in correlates of quantities possessed from July to October were not generally great enough or consistent enough to suggest a pattern.

In other comparisons of July and October, the percentages having large quantities of specific materials (20 or more containers of a given type) were not reduced by the collection drive or by the associated publicity in any of the two cities or the farm samples. In fact, the percentages having larger quantities actually rose (but not statistically significantly) in all three communities (up from 4.4 percent to 5.9 percent in CUF, from 4.0 percent to 6.0 percent in Decatur, and from

17.0 percent to 25.0 percent among farmers). These extreme cases differed from those with lesser quantities principally in that a greater preponderance of the former lived in single-family houses (in the cities) and were younger (farmers) than was true of the latter.

Disposal of HHW was not commonly carried out by many households. Fully 82 to 100 percent (typically about 95 percent), depending on community and type of HHW material, were not disposers during the previous year. Clearly, most households have some alternative to disposal, often by not acquiring the material or by keeping it until used.

Inappropriate disposal (e.g., sent to the landfill or dumped on the ground or down a sewer) was reported in July as having occurred on average for 1.20 partial or full containers per household in CUF in the past 12 months. A modest but not significant decline reported by October can only be attributed to sample error. A pooled estimate of inappropriate disposal per household per year (based on pooling July and October survey data) shows a 1.02 container per household disposal rate in CUF. Some 23 percent of households inappropriately disposed of something during the previous year. The total quantity inappropriately disposed of is equal to 9.9 percent of the containers "currently" in CUF homes.

The figures for inappropriate disposal in Decatur were slightly lower (a per-household inappropriate disposal rate of .88 containers per year, with 19 percent of households participating in inappropriate disposal over the year). The total quantity of inappropriately disposed of containers equals 7.4 percent of the containers reported to be "currently" in homes.

Among farmers, the figures were .83 inappropriately disposed of containers per farm per year and inappropriate disposal by 10 percent of the farms. The inappropriately disposed of quantity equals only 3.0 percent of the containers reported to be "currently" on farms.

Those who inappropriately dispose of HHW are equally prevalent in all sectors of the population, except for two rather different groups who have higher rates of inappropriate disposal--the younger people and those who "currently" have large quantities on hand. Since the latter tend to be of higher socioeconomic status, live in single-family houses, and have large families, they tend to be people in the productive years of mid-life. They acquire lots of HHM&W and inappropriately dispose of some of it. The younger population, although acquiring no disproportionate quantity, tend also inappropriately to dispose of some of what they do acquire. For these younger people, the uncertainty of future commitments to the community and residence may be more relevant in trying to understand inappropriate disposal than is the quantity of HHM&W acquired.

City and farm homes also had an enormous supply of HHM&W, some or all of which the residents wanted to get rid of. For example, in July there were 3,300 CUF households and 333 Champaign County farms with up to 9 containers per CUF household and 6 containers per farm that they wanted to get rid of. No single collection event of presently imagined manageable proportions could take in this much material.

The types of CUF households with materials that they wanted to get rid of were disproportionately upper income, better educated, in single-family houses, and with middle-aged respondents. Those with some materials that they wanted to get rid of were also those with much "currently" on hand, as well as those who inappropriately disposed of some in the past. In fact, previous inappropriate disposal was one of the stronger predictors of having some material that they wanted to dispose of.

Those in CUF who heard of the collection event were more than twice as likely as those who did not hear of it to have some material that they wanted to get rid of. There was also greater holding of material awaiting disposal by those who were more knowledgeable about HHW than by the less knowledgeable. There are also other indications that those who received information about HHM&W and about the collection drive may have developed a commitment to hold the material for proper disposal. The number of people who were both informed and holding onto material for disposal also increased from July to October.

In general, the volume of HHM&W in homes is not so great as to suggest hazards in every corner, but it is substantial enough. There is virtually no disposal, inappropriate or otherwise, from most homes, and only a trickle of disposal from much of the remainder. The number of high-volume possessers and disposers is very small.

Yet, the quantities add up when taken from many thousands of homes over the course of a year. They constitute a volume now being inappropriately disposed of that would clearly require a major collection effort to divert fully. The quantities remaining in homes that are unwanted and awaiting proper disposal are very much larger still, so large as vastly to exceed anything that collection drives as presently conceived could gather in one single-day event.

Finally, the quantities that are used in homes, although not measured in this study, are surely larger still and present wholly different issues of public education in safety, proper usage, storage, and serviceable alternatives.

CHAPTER 8

POLICY ISSUES

Findings regarding an assorted set of other issues addressed in the two surveys are reviewed in this chapter. On most of these issues, there was no significant change from July to October. To simplify the presentation of findings, only the July survey is routinely referenced here. The reader may examine the tables in Appendix C to confirm the consistency of findings from July to October.

8.1. The Public Searching for Ways to Live With (and Without) HHM

8.1.1. Accidents

Respondents were asked whether there had been "any accidents involving injuries in your household because of hazardous materials" (Q.11 and Table C.11). Affirmative responses were given by 2.1 percent of the July Champaign/Urbana/fringe (CUF) sample, 0.7 percent of the Decatur sample, and 4.1 percent of the Champaign County farmer sample. The CUF figure projects to a total of 796 CUF households. The farmer's percentage projects to 73 farm households in Champaign County. Although the percentages may seem small, the projections are certainly nontrivial. There were some increases in all of these percentages and projections in the October survey, but they were not significant.

8.1.2. Buying HHM

Respondents were asked whether, in buying hazardous products, they "generally try to find those with warning labels explaining how to use or dispose of them" (Q.12 and Table C.12). About two-thirds of both the CUF sample and the Champaign County farmers in July answered "yes," while almost three-quarters (73 percent) of the Decatur respondents answered "yes."

Asked whether they "generally try to buy less harmful substitutes for hazardous products" (Q.13), approximately 64 percent of both the CUF sample and the farmers answered "yes" in July, as did 56 percent of the Decatur sample.

8.1.3. Attending To Information about HHM

An effort was made to identify the types of information that respondents would pay attention to should it be provided to them during an information campaign. Respondents were read a list of five types of information about HHM--"the kinds of household products that are hazardous," "how to use and store hazardous products safely," "dangers associated with hazardous products," "how to dispose of hazardous products safely," and "nonhazardous alternatives for household use"--and asked whether they paid special attention to information about each (Q.23 [July], Q.20 [October], and Table C.23). Over half in every sample, and generally above three-quarters, said that they paid special attention to each of the five types of information listed.

The farmers were by a significant difference especially more attentive to all of these types of information than were respondents in the other two samples. Virtually every farmer respondent in July (except only 2.1 percent) said that they paid special attention to information about the dangers with hazardous products. Nearly 90 percent of the farmers paid special attention to information about how to use and store hazardous products and how to dispose of hazardous products. This is the strongest indication of the previously noted exceptionally high level of awareness of and attentiveness to problems with hazardous materials by farmers.

In CUF, attentiveness increased significantly from July to October for all five types of information, putting CUF attentiveness more nearly on a par with farmers. In Decatur, there were also significant increases in attentiveness for two types of information, and nonsignificant increases for the other three types of information. These changes, therefore, seem to reflect some general regional trends that are stronger in CUF, where the publicity campaign appears to have had a small effect over and above that of the general trend.

8.1.4. Participation in an HHW Collection Day

Asked in the July survey whether their household would participate "if your community set up an annual collection site for people to drop off hazardous household waste" (Q.17a), a surprisingly large 85-90 percent of each sample answered "yes" (Table C.17). Although this certainly cannot be taken as a commitment, or even as a long-range expectation, it does show overwhelming support for the concept.

In answer to a question in the October survey about whether their household participated "in the hazardous household waste collection event on September 13" (Q.18 and Table C.17), 2.5 percent of CUF and 9.9 percent of the farmers said "yes." These self-reports are at most 2-3 times larger than the percentages that we would expect from knowledge of how many households actually did participate (Table H.1). Some of this excess may be people who came late and were turned away. Others may be post-event bandwagon free riders, a familiar type of biography rewriter that is often uncovered in survey research by questions like this one.

8.2. Attitudes and Opinions on Policy Issues

8.2.1. Adequacy of Government Spending on Various Functions

Early in the questionnaire, respondents were asked whether they felt "that government is spending too much money, about the right amount, or too little money" on six different functions: "protecting the local environment," "the public education system," "landfill operation and maintenance," "economic development," "drug and alcohol problems," and "the disposal of hazardous household waste" (Q.3). The form of this question is identical to the very first major policy issue question used in an institutionalized program of longitudinal research on public opinion, George Gallup's national survey of October 1935. The Gallup Poll still uses it, changing the list of government functions to keep up with the times.

Findings from our surveys are reported in Table C.3. There are a substantial number of "don't knows" for all six functions, indicating a feeling of lacking knowledge or other competency for answering the question. This is a legitimate response and should not be forced into a position. It is notable that the largest percentages of "don't knows" (in the 42-46 percent range) occurred in July for the function of "disposal of household hazardous waste." This is understandably high for a government activity that had barely entered the scene at the time of the July survey; it is surprising that the July "don't knows" were not more numerous.

In October, the "don't knows" for spending on HHW disposal had declined significantly (at the .01 level) in CUF and among farmers, indicating a salutary effect of the publicity campaign in increasing public knowledge about an HHW disposal program. Among Decatur residents, there was a nonsignificant decline in "don't knows."

Among those in CUF who took a position on the adequacy of funding, the mean scores in Table C.3 show surprisingly that "disposal of hazardous household waste" got the strongest pro-funding response in July (a mean of 2.57) of the six functions. In Decatur, education and drug/alcohol problems received the highest pro-funding response (means of 2.47), while disposal of HHW came in behind them (with a mean of 2.41). Among farmers, disposal of HHW was again in third place, behind education and drug/alcohol problems. It should also be noted that, in all three July samples, funding for disposal of HHW was considered to be less adequate than is funding for the landfill.

In comparison with CUF residents in July, the farmers preferred less spending for protecting the environment, for economic development, and for disposal of HHW. Farmers also preferred less funding on the first two of these than did Decatur. And CUF preferred less funding on economic development and more on disposal of HHW than did Decatur.

All of these between-sample differences can be easily exaggerated, however, if one fails to note that the overwhelming majority of each sample stated that funding is either "about right" or "too little."

Moreover, the percentage saying that there is "too much" spending was invariably--in all six samples in both July and October and for all six functions--less than the percentage saying that there is "too little" spending.

8.2.2. Laws and Norms Regarding HHM&W

A series of questions was devised to tap views about appropriate social norms and public law on selected issues regarding HHM&W (Q.15 and Table C.15). Five normative or policy statements were read to the respondents, who were asked whether they "strongly agreed, agreed, disagreed, or strongly disagreed" with each.

The statements and highlights of the findings are given below:

a. "Manufacturers should be required to provide clear warning labels about how to use and dispose of hazardous products."
Overwhelmingly, all three samples strongly agreed.

b. "People should store leftover hazardous products if they can use them up later."
While each sample overwhelmingly agreed or strongly agreed, there was some notable disagreement. Household size or the presence of school-age children, seemingly likely correlates, were not in fact correlated with this attitude at $p = .05$ for any sample in either survey.

c. "There should be a law against disposal of hazardous household waste in sewers or on the ground."
Over 90 percent of each sample in both surveys agreed with this statement. The percentage in CUF who strongly agreed rose significantly from July to October, indicating increasing sensitivity to disposal problems. (Interestingly, there was no correlation with amounts inappropriately disposed of.)

d. "Government should promote the use of nonhazardous alternatives."
Over 90 percent of each sample in both surveys agreed with this statement.

e. "The community should allow all hazardous household waste to be picked up in the garbage and hauled to the landfill."
Respondents in each sample were fairly closely divided down the middle in July, with 56-65 percent disagreeing. The two Champaign samples (CUF and farm) disagreed most strongly, while the Decatur sample was closer to being evenly split. Education was the strongest demographic correlate in all three samples, with the better educated disagreeing with the statement (for CUF, $r = .19$; for farmers, there is an astonishing $r = .37$; and for Decatur, $r = .18$). If we consider "living in single-family houses" to be a demographic variable, the correlation is

stronger in Decatur, with another astonishing r = .38, indicating disagreement by residents of single-family houses. Between July and October, there was a nonsignificant increase in disagreement among farmers and a significant increase in CUF, indicating increasing sensitivity to disposal problems.

There were no statistically significant differences between the three samples in July with regard to mean responses on these attitude variables. Norms in the three communities were remarkably similar in July. By October, however, CUF and the farmers had become significantly more negative than Decatur toward allowing hazardous waste into landfills.

8.2.3. Program Preferences

Respondents were asked for their preferences concerning "several types of special collection programs for hazardous household waste" that "state and local governments are funding" throughout the U.S. (Q.16 and Table C.16). The two options were "a collection site for people to drop off their hazardous household waste" or "curbside pickup." For whichever option respondents preferred, they were asked whether they would prefer it to be "one or two days a year" or "at least one day each month." Findings include the following:

* In July, preference for a collection site for people to drop off their HHW was indicated by 40 percent of CUF, 35 percent of Decatur, and 68 percent of the farmers. The alternative option offered to respondents, curbside pickup, was preferred by 59 percent of CUF, 63 percent of Decatur, and 32 percent of the farmers. By October, all three samples had shifted more toward favoring a collection site, but only in CUF was the shift significant.

* The farmer's significantly greater preference for a drop-off collection site is understandable, given the logistics of rural "curbside" pickup. Compared with CUF, Decatur's greater preference for curbside pickup is not as easily understood. It may reflect unfamiliarity with drop-off collection sites, a program mode that is very effectively used in Champaign County for recycling.

* Of those who preferred a drop-off collection site, 90 percent or more in each sample (except farmers in October) preferred that it be open "at least one day each month" instead of "one or two days each year."

* Of those who favored curbside pickup, 70-80 percent in each sample (except farmers in October) preferred service at least monthly rather than once or twice a year.

8.2.4. How to Pay For an HHW Diversion Program

Finally, respondents were told that "it costs between \$5 and \$30 per household each year to dispose of hazardous household waste properly" and were asked whether the funding for a special collection program in their community should come primarily from "a sales tax on hazardous products," "general state tax revenue," "general local tax revenue," or "fees collected from garbage trucks at landfills" (Q.16d and Table C.16). The most preferred option in all samples (except farmers in July) was for a sales tax on hazardous products. The second most frequently chosen option was for a garbage truck landfill "tipping" fee. Relatively few preferred the use of general state or local taxes. Even fewer volunteered the idea that those who dispose of HHW should alone pay for the costs of that disposal.

8.3. Summary

Most respondents in all three communities reported that they look for products with warning labels when they buy HHM and that they prefer to buy less harmful alternatives. Reported attention to information about HHM&W was also very high, especially among farmers.

Nearly half of each of the samples felt that they could not comment on the adequacy of funding for disposal of hazardous household waste. Of those who did comment, this function of local government received in July the highest "pro-spending" response among six functions listed for comparison. Based on the responses given, it appears that the public strongly favors requiring manufacturers to provide warning labels on HHM containers and overwhelmingly believes that laws should bar dumping HHW in the sewers or on the ground. The public is almost evenly divided over whether to allow HHW to be hauled to the community landfill.

It is evident, however, that the public favors an environmentally appropriate HHW disposal option. Overwhelming proportions of respondents in each of the three communities indicated interest in participating in an HHW collection program. A special HHW collection program with curbside pickup was favored by the urban populations, and a drop-off program was favored by the farmers. The urban resident's most preferred way of funding an HHM&W program was to have a sales tax on hazardous products, while the farmers were more evenly split between the sales tax option and a surcharge on "tipping" truckloads of common household solid waste at the landfill.

CHAPTER 9

CONCLUSIONS AND RECOMMENDATIONS

The conclusions focus on the implications or significance of the findings for designing, carrying out, and evaluating HHM&W programs. The recommendations focus on what might be done to make better information available to state and local HHM&W program planners.

9.1. Conclusions: Implications and Significance of the Major Findings

It seems likely that Illinois will soon have an increasing number of communities holding some type of HHM educational program and HHW collection event. This prospect is due to several developments: the growing tempo of similar activities nationally, the interest at HWRIC in providing communities with information and technical assistance in this area, and the attention that many local communities are giving to their waste disposal and environmental problems.

In the general public, there is also a genuine concern and need for these programs. Viewed from inside the house, hazardous materials are nearly everywhere. Our survey of Champaign/Urbana/fringe (CUF), Decatur, and Champaign County farmers found that people are surprisingly aware of HHM&W as a problem and a hazard, have substantial quantities around the home, are often looking for ways to get rid of them, are left with little option but inappropriate disposal, generally prefer to minimize HHW, and favor public programs that would provide an environmentally responsible disposal alternative.

In discussing the implications of these survey findings, the experience of other communities provides an informative background. In particular, it is instructive to recall that all previous programs seem to combine, with varying emphases, two features:

a. A collection component aimed at gathering together and recycling or properly disposing of excess HHW by contract with an approved hazardous waste disposer and

b. An educational component aimed at reducing both the quantities of HHW generated by homes and the risks of using and storing HHM in the home.

These are the two basic elements of any community HHM&W program likely to be implemented in the future.

The second major lesson from previous programs is that they seem to attract increasingly more people to each successive collection event. There appears to be a diffusion effect that begins with involvement by some early-participant core and expands outward to a wider circle of people who were initially hard to reach. This diffusion principle, not uncommon in program implementation, is assumed for the purposes of this discussion to be applicable to HHM&W programs.

9.1.1. Awareness of HHM&W and the Public's Need for Information

A substantial fraction of each community already had some knowledge about HHW before the publicity for the collection event began. The farmers were generally much better informed than were CUF residents, and the latter were better informed than were Decatur residents. For example, nearly 6 out of 10 farm households, nearly 4 out of 10 CUF households, and nearly 3 out of 10 Decatur households had already heard something about HHW before the collection publicity began.

Approximately three months later, after a very short period of publicity and rather limited efforts at public education, public awareness of HHW as a public issue had risen by 20 percentage points in every community. Between one-third (in CUF) and one-half (among farmers) of the previously unaware had become acquainted with some public discussion of HHW.

It was not a deep awareness. Asked before the collection publicity how they had heard of HHW, most of those who had heard anything at all could cite only one source. After the publicity, more sources were cited, suggesting a deepening of knowledge. Both before and after the publicity campaign, most of the information sources that were cited were from TV or newspapers. The reliance of the campaign on media and mailings meant that interpersonal networks were minimally activated in the cities, where this very powerful source of influence and information went underutilized. Farmers, however, were very effectively and widely informed through the interpersonal and organizational networks of the local county branch of the Farm Bureau. In the cities and on the farms, both before and especially during the campaign, the better-educated, longer-term residents and community-involved, voting citizens were most likely to be informed by some source, especially from the more effective interpersonal sources.

This indicates a respectable initial minimal level of awareness among a civic-minded, higher-income, and well-educated segment of the population, in which the Champaign collection program found ready reception and from which emerged a widening circle of people informed about HHW. The widening circle was highly selective of people like those in the initial core, for awareness spread to others who were even more likely to be well educated, affluent, and involved in civic affairs. This is perhaps the sector of the community that can be expected to be leaders in a new program that appeals to civic responsibility.

The challenge in the future will be to find ways to reach those who are initially slower to become engaged in these programs. Although the proportion of people unfamiliar with HHW had shrunk significantly in CUF and among farmers, the proportion of these who were less well educated, newer residents, non-homeowners, or uninvolved in civic affairs had grown. There clearly remains a need for an educational effort having more popular appeal.

Whether it is realistic or worthwhile to undertake such an effort remains unclear. If the diffusion model applies, it may be advisable during the first year or two of a program to concentrate on those who are predisposed or already concerned and to target the uninformed portion of the population for modest gains in recognizing HHW as a problem. Because the less aware in the cities also tend to live in apartments, they also have relatively limited options with regard to HHM use and storage and may not be experienced with some types of HHM. Their use for HHM&W information is not as extensive as it would be among the residents of single-family houses, so they would need to be addressed in terms of their more limited concerns.

9.1.2. Identifying HHM&W and the Public's Need for Information

On another "awareness" question, just over 75 percent of the farmers and over 80 percent of the CUF households were able to identify at least one type of household hazardous material or waste before the campaign, while in Decatur it was just over 70 percent of households. As with basic awareness of HHW as an issue, the campaign seems to have had a positive effect. At the end of the campaign in October, there were significant increases in the proportions who could name examples of HHW. Most could not only name some products but were also clearly naming products that are concensually regarded by experts as hazardous to some degree. It was also once again found in the CUF samples and less so in the Decatur samples that the better-educated, civic-minded, and longer-term residents could name the most products, both before and after the campaign. The effect of the campaign was seen in the fact that changes in Decatur tended to be random, while changes in CUF involved improved knowledge by the higher-status and more civic-minded residents. Informed farmers also tended to be the longer-term residents. These are, once again, the segments of the community that are most prepared to receive additional information and to get an HHM&W program off the ground.

Yet, the same findings on the public's ability to name examples of HHM indicated a substantial remaining need for more information. Asking whether a household head can name one or more examples of HHM is certainly not a high standard for assessing awareness. One-quarter in July and nearly one-fifth in October could not name a single HHM product type, and some who tried were offering highly dubious answers. A more demanding standard for correctly identifying possible types of HHM would surely produce lower percentages of those who could identify them. Given our minimal standard for assessment, then, there is clearly much education to be done before examples of HHM are household words that are universally thought of as potential HHW.

When respondents were reminded of specific examples of HHM in the next question in the survey, and then asked how hazardous these products were, over 90 percent could give a hazardousness rating. Response rates on this item went up in the October survey. Not only could they give ratings if they were reminded of types of HHM, but their relative ratings were on average generally fairly realistic and sound in light of present scientific judgment about the relative hazardousness of various products. Small but significant proportions underassessed the hazardousness of some products, and there were less prominent instances of overassessment, but the averages were reasonably sound. As an apparent consequence of increasing public attention to HHM&W issues during the publicity campaign, the average hazardousness rating went up between July and October. In short, with some prompting, the vast majority of the population can recall some reasonably valid knowledge about HHM, and as they become more informed, their ratings of the hazardousness of products become more severe.

In light of these last findings, it should be among the aims of an educational campaign to (a) minimize the underassessment (and occasional overassessment) of hazardousness, (b) give concrete meanings to the label of "hazardous" for each HHM, (c) increase the accessibility of knowledge about hazardousness so that it emerges in people's memory with less prompting, and (d) further reduce the already low percentage who cannot assess the hazardousness of types of HHM.

The first two of these aims involve communicating fairly complex information and may be most effectively addressed to those who are already minimally aware--namely, the better educated, the longer-term residents, and the civic minded. The second two aims involve communicating much more basic messages, perhaps repetitively in order to increase basic familiarity. Such messages might be most effectively addressed to those who are initially less aware, to move them to a stage where more complex messages might subsequently be made effective as well.

9.1.3. Channels of Communication That Provide Awareness

In the analyses of awareness, there were some useful findings regarding which types of media and other channels of communication are likely to reach what kinds of people. In general, we found that interpersonal networks, including clubs or organizations, along with talk/information radio and, if only because of the size of their readership, newspapers, were important means of communicating early information about HHM&W. The entertainment mass media (TV and music radio) were not good sources of awareness of HHM&W, except in the comparison community of Decatur, where the chief source of information about the Champaign collection event was from a regional television station. Television reached a mass audience but had little impact on those who actually knew anything about HHW. Campaigns should probably have different types of educational materials, strategies, and goals for the truly mass media of television on the one hand and for the more in-depth media of newspapers and radio on the other hand.

It is also clear from our October survey that massive efforts to distribute flyers or brochures through the mail and door-to-door have relatively little impact. Although most or all CUF households received them, very few remembered them.

Although local newspapers played little or no role in promoting pre-campaign awareness, they became the most common source of information during the campaign. Perhaps local newspapers are most effective in distributing information to the unaware only after early awareness is established by other means and after a "newsworthy" program or event draws attention to the concerns of the early starters. Local newspapers might best be viewed as conveyors of rather simple messages aimed principally at establishing basic recognition of an issue and a favorable climate of opinion toward doing something about the issue.

9.1.4. The Need for Reducing HHW and for an HHW Disposal Option

The public's need for an appropriate HHW disposal option was evident in several findings from our surveys.

One important finding concerns the number of containers of HHW that were inappropriately disposed of (e.g., in the garbage or on the ground) during the previous year. In CUF, our two surveys gave us an estimated annual rate of 38,600 partial or full containers of HHW that were inappropriately disposed of by all households in the community. These containers of HHW went to the landfill or were dumped on the ground or down a sewer. In Decatur, there were an estimated 30,750 partial or full containers annually disposed of inappropriately, and from Champaign County farms there were an estimated 1,490 partial or full containers inappropriately disposed of each year. There were no significant changes in these reported annual disposal rates from before the campaign began in July to after the campaign ended by October. A year will need to pass before we can get a valid comparison assessing change in these rates.

These are estimates based on self-reported recall by one informant per sampled household. Because of probable limitations in how well people recall details about garbage, including HHW, these seem likely to be underestimates of the numbers of partial or full containers of HHW actually inappropriately disposed of during a year's time.

Even so, the numbers are substantial. Put the CUF total of 38,600 containers in one place and they would take up 74 to 158 cubic yards.

By present standards, a successful annual collection event can begin to reduce the estimated rate of inappropriate disposal but will not in itself eliminate it. The Champaign County collection event was successful beyond the planners' expectations, but it drew only about 7 percent of the number of containers that are annually disposed of in the county in some inappropriate way by CUF residents or farmers. Clearly, collection events must take in substantially more than the one in Champaign County did, and they must be preceded by educational campaigns that place primary emphasis on reducing the generation of HHW in the first place. Other options that the public could pursue to reduce the total amount of HHW include recycling, giving to those who can use it, buying less, buying less hazardous substitutes, or storing until used.

In addition to what people have inappropriately disposed of in the previous year, there are a substantial number of households that have been storing HHW while the owners look for a way to get rid of it. In CUF in July 1987, an estimated 3,300 households had some HHW awaiting disposal. By the end of the campaign in October, the number of households holding unwanted HHW had risen to 4,396. In Decatur, there were an estimated potential of 4,050 households in July and 3,520 households in October with unwanted HHW. Some 333 farm households in July and 381 in October had unwanted HHW awaiting disposal.

These numbers greatly exceed the number of households that a successful collection event might attract. It is doubly clear that collection events divert only a portion of what is awaiting or destined for disposal. It is also increasingly clear that collection events, while serving as useful HHW diversion activities for waste that has no other destination but inappropriate ones, must also serve as attention-focusing centerpieces within educational campaigns that have the larger goal of calling attention to needs and strategies for HHW reduction in general.

9.1.5. The Potential Magnitude of the HHM&W Problem

In addition to the number of partial or full containers of HHW that households dispose of, and in addition to the quantity that households are storing but want to get rid of, there is still a much larger quantity of HHM that households are storing and have not chosen to classify as HHW.

There may be well-understood intended uses for part of the HHM that some households have in storage. There must also be no intended use, or only the most vague or wishful intended use, for some of the HHM in home storage. There are changes in plans, accidents around storage areas, and simple aging of materials that force reclassification of some materials from useful and wanted stuff (HHM) to useless or unwanted stuff (HHW). An educational campaign and collection event may inadvertently or intentionally prod some of these changes in classification, thereby increasing the quantities of HHW beyond that disposed of or awaiting disposal before the educational campaign began.

In CUF, the average household had 10.3 containers of HHM in storage in July, with only 11 percent of households having 2 or fewer containers. There was no change by October. Pooling the July and October surveys, we found an estimated total of 390,100 containers of HHM in CUF households, or enough to fill an area of 750 to 1,590 cubic feet if they were all brought to one place. Of these containers, nearly 60,000 or 15.3 percent (averaging nearly 2 per home) were containers of pesticides or herbicides.

In Decatur, the average household had in July 10.9 containers of HHM, with only 7 percent having 2 or fewer containers. Decatur households had an estimated total of 417,700 containers of HHM.

On Champaign County farms, the average household had 26.1 containers of HHM in storage, with only 2 percent having 2 or fewer containers. These farm households had an estimated total of 49,000 containers of HHM.

All of these containers, when emptied, probably are destined for the community landfills. Some of them are probably destined for inappropriate disposal before being emptied. It is clearly important that educational campaigns stress the importance of keeping and using or recycling that which is in storage and is useful, in order not to inadvertently invite a flood of needless storage reduction into either the waste collection or the regular garbage pickup. At the same time, it is important for educational campaigns to help households identify those materials in storage that should be disposed of before their presence around the home becomes a hazard. Given the potential volume of what could be transferred from storage to waste, this is an issue to be addressed with great care and balance in an educational campaign.

Because of the volume of HHM that passes through or stays in nearly all homes, the character of an educational campaign could address a number of issues about proper handling of HHM&W. Most households seem to be receptive to, if not already familiar with, some of these issues. For example, most respondents in all three communities reported that they look for products with warning labels when they buy HHM and that they prefer to buy less harmful alternatives. Reported attention to information about HHM&W was also very high, especially among farmers. Attention to information about HHM&W rose significantly during the period of the publicity campaign.

9.1.6. Finding Those with the Greatest Quantities of HHM&W

The public is divided into two major groups with regard to quantities of HHM&W available or disposed of.

The first group, found only in CUF and among the farmers, may be called "the young and mobile," traits that apply to a disproportionate number of those who inappropriately disposed of the greatest quantity of HHW. Short-term or recent residents and the young are a special concern not just because they disproportionately dispose of HHW in inappropriate ways but also because they are the types of residents who are least well tied into community institutions. It is somewhat more difficult to reach them with information about HHM&W through organizations or other established channels of communication. However, to reach the inappropriate disposers, it is essential to try to find a way to communicate with the young and the mobile. The media that they follow tend to be the entertainment mass media.

The second group may be called "the established citizens," a term that seems to summarize the traits of those possessing the greatest quantities of HHM. In CUF, these are the homeowners, those with larger households, the civic minded, and the more established long-term residents, who also have some minimal previous awareness or knowledge of HHM&W and were slower to acquire awareness by October. In Decatur, those with higher educational attainment and higher income, the community involved, and those with large household size are the ones with the greatest quantities of HHM. Among farmers, older respondents and those with large households and school-age children possess the greatest quantities.

In each community context, these are the established citizens who are also the people who may be most predisposed by prior knowledge or sense of community responsibility to adopt HHW reduction strategies as well as to participate in a collection event. These are people who can be addressed with information pitched at a higher-than-basic level of complexity.

Interestingly, those city dwellers with large quantities of HHM, while being overwhelmingly established citizens, are also significant contributors to inappropriate disposal. This is true in CUF, where the established citizens having large quantities of HHW stand alongside the young and the mobile as inappropriate disposers. It is also true in Decatur, where having lots of HHM is a very strong predictor of inappropriate disposal and, in fact, the only predictor other than large household size. It appears that, in the cities, those who have acquired a great quantity of HHM have also acquired a tendency, probably out of a sense of necessity, to dispose of some of it on occasion.

Simple as this observation may be, it is an important one with easily overlooked implications. One implication is that a program that reaches the large-quantity possessors will presumably achieve some reduction in inappropriate disposal. Another implication is that these large-quantity possessors, being established citizens, are probably more readily reached through established organizations and information channels and likely to be predisposed to respond positively. A third implication is that their prior awareness level may permit communication of more complex forms of information, including information of a type that they could well use on how to reduce their generation of HHW.

Finally, there are those who are holding onto material that they would like to dispose of. Their need for information about proper disposal, especially through a diversion program, is fairly immediate. These people are disproportionately found in the higher-status areas of the cities and in the larger-household farms. Also, both in the cities and on the farms, those possessing large quantities of HHM are again of special concern, for they also are the ones with the greatest quantities awaiting disposal. Targeting educational efforts to these groups would follow the same guidelines outlined above for the established citizens.

It is a mark of some accomplishment that the publicity program in Champaign County managed to reach many of the important target groups. Most notably, it reached those with large quantities of HHM&W, those households that had HHW that they wanted to dispose of, and--by disproportionately reaching these--it also had some effectiveness in reaching those who have inappropriately disposed of HHW in the past. It succeeded in this regard, it seems, principally by reaching the upscale, single-family homes where large quantities of HHM&W are found and where some HHW is kept in storage. The challenge of the future will be to spread this impact more broadly to reach as well the younger and apartment-dwelling segments that have high inappropriate disposal rates.

9.1.7. Policy Options and Public Opinion

Perhaps because the issue is so new, nearly half of the samples felt that they could not comment on the adequacy of funding for disposal of household hazardous waste. Of those who did comment, this function of local government received the highest "pro-spending" response of the six functions listed for comparison. There was no significant change from July to October.

Consistently in both the July and October surveys, households in CUF strongly favored requiring manufacturers to provide warning labels on HHM containers. In increasing numbers from July to October, the respondents overwhelmingly believed that laws should bar dumping HHW in the sewers or on the ground. They were more evenly divided over whether to allow HHW to be hauled to the community landfill.

It is evident, however, that the public favors an environmentally appropriate HHW disposal option. Most respondents in each of the three communities indicated interest in participating in an HHW collection program. A special HHW collection program with curbside pickup was favored by the urban residents, and a drop-off program was favored by the farmers. Despite the convenience of curbside pickup, it is probably not financially feasible. The urbanites' preference for a curbside program may indicate the extent of their support for a public collection program.

The urban residents' most preferred way of funding an HHM&W program was to have a sales tax on hazardous products, while the farmers favored a surcharge on "tipping" truckloads of common household solid waste at the landfill. These are emerging nationwide as two of the most innovative and effective ways of funding HHM&W programs.

In general, the public is prepared to support new programs to improve the handling and disposal of HHM&W. This inclination is consistent with a rather widespread basic awareness of HHM&W and a tendency by many households to withhold HHW from improper disposal while awaiting a disposal option. Although substantial quantities of HHW are nonetheless inappropriately disposed of for lack of an adequate alternative, the public clearly favors an aggressive special collection program and some form of public educational effort. The need for both is even clearer.

9.2. Recommendations

It is recommended that HWRIC promote a series of campaigns and events throughout the state seeking to have communities adopt and institutionalize programs of their own. The Champaign/Urbana experience can be used as a model.

It would also be advisable to draw on Florida's discovery that campaigns become increasingly more effective in neighboring communities because of the spillover effect of public education. Thus, campaigns could be scheduled in waves across the state to maximize the build-up of spillover effects.

It is recommended that the Champaign/Urbana surveys be continued beyond the post-collection-day follow-up. For several years, there should be annual monitoring to identify longer-range trends in household behavior regarding HHW&M. In addition, consideration should be given to the likely value of a similar survey in a part of the state that might be uniquely different in household composition, most notably the Chicago area.

Finally, it is recommended that research attention be given to tracing the policy impacts of information and expertise on hazardous waste disposal. This report is part of the effort to make information available. Many other types of information and various forms of expertise exist that remain loosely connected in growing networks of policy officials, researchers, and other experts. It is a matter of some importance what priorities determine which types of information or expertise get introduced into decision making and which priorities remain information poor at the decision-making level.

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APPENDIX A

PUBLICITY

Hazardous wastes originate in households too

By CHRIS SCHULTZ
News-Gazette Staff Writer

Not all users of dangerous chemicals and dumpers of hazardous waste are in an industrial area surrounded by smokestacks and railroad tracks.

Many are nestled among smooth green lawns in the best of neighborhoods.

"It's not just large chemical companies and industries," said Christina Komadina of the state's Hazardous Waste Research and Information Center in Savoy. "We're all users and dumpers of hazardous waste."

The center is working with the local Intergovernmental Solid Waste Disposal Association to organize a household hazardous wastes awareness program for Champaign-Urbana.

A publicity campaign about household hazardous wastes will be launched this summer, and the center will take a telephone survey of residents in Champaign-Urbana to check on their awareness of which household chemicals are potentially dangerous, Komadina said.

AND IN OCTOBER, the center will help organize a collection day when residents can bring their containers of hazardous household chemicals to be disposed of properly by a hazardous waste disposal company hired by the solid waste disposal association, she said. It's hoped the program will be repeated annually.

The association estimates the cost of the program this year will be $23,000, with $3,000 set aside for the educational program.

While industries by law must dispose of hazardous wastes in special landfills or burn them in special incinerators, there is no such requirement for households.

The federal and state governments have decided that because household hazardous waste is a relatively small amount of the total household wastes, those chemicals are exempted, regardless of how toxic, flammable or chemically reactive they are, said Jim Darling, Urbana's director of public works.

"They are not saying they (household hazardous wastes) aren't bad, but they are saying they are exempted," said Darling.

And that means municipal landfills are taking in relatively small amounts of wastes that, in larger amounts, would be considered hazardous.

NOT EVERYONE WHO is a frequent user of household convenience chemicals recognizes the dangers that may lurk behind a friendly brand name, said Dan Kraybill, the center's industrial engineer.

Drain cleaners, for instance, usually have sodium hydroxide as their main active ingredient, he said. It's also known as caustic soda or lye.

"That's very, very corrosive," said Kraybill. "It's really nasty stuff in the house."

And there are cases in which people thought they could create a "super-cleaner" by mixing an ammonia-based cleaner with chlorine bleach, said Kraybill. What they got instead was a cloud of chlorine gas, a deadly chemical used as a weapon during World War I.

In the garage, waste engine oil is hazardous and is considered a cancer-causing agent.

SOME PAINTS, PARTICULARLY old lead-based paints and oil-based paints, are considered hazardous because they are poisonous and flammable.

Household pesticides and herbicides contain poisons that are as deadly to humans as they are to cockroaches and dandelions.

"The best solutions for all these materials is not to throw them away, but to use them," Kraybill said. "And be a smart shopper. "Don't buy a big can of something when a little can will do."

So far, the small amounts of household chemicals in local landfills have not created any big headaches, Darling said.

"In 15 years, we've have six occasions in which we've had explosive events (at the landfill)," said Darling. None resulted in injuries or fires.

IN CHAMPAIGN COUNTY, it's estimated that there are nearly 1,000 pounds of household hazardous waste produced every day, said Darling. That's a fraction of the 322 tons of household trash and garbage that county residents dispose of in a day.

Even so, the solid waste disposal association is concerned that as household chemical uses increase, the Urbana landfill or the new regional landfill could become a mixing bowl for potentially dangerous chemical combinations.

The fear is that those chemicals might be able to erode a landfill liner and contaminate the groundwater below, said Darling.

The association is looking for a collection location, said Darling. "We want to find somewhere that's good for traffic flow and is accessible for everyone," he said.

Champaign-Urbana's collection program will probably be the first in Illinois, and the center, which is part of the Illinois Department of Energy and Natural Resources, is hoping to make it a demonstration program for other communities, Komadina said.

C-U to dispose of home chemicals at October event

In October, residents of Champaign and Urbana will be invited to bring out the household chemicals they may have been afraid to throw out.

Champaign-Urbana will be the first Illinois community to have a household hazardous waste "diversion event," according to Christina Komadina of the state Hazardous Waste Research and Information Center in Savoy.

Illinois has been slow to catch on to household hazardous waste collection.

Communities in Wisconsin, Michigan and 31 other states have regular household hazardous waste collection programs, she said.

The Intergovernmental Solid Waste Disposal Association, representing Champaign, Urbana and the county, will sponsor the event. Because this is the first year, only the cities will participate, Komadina said.

There probably won't be many participants. A 1 percent turnout is considered good, Komadina said.

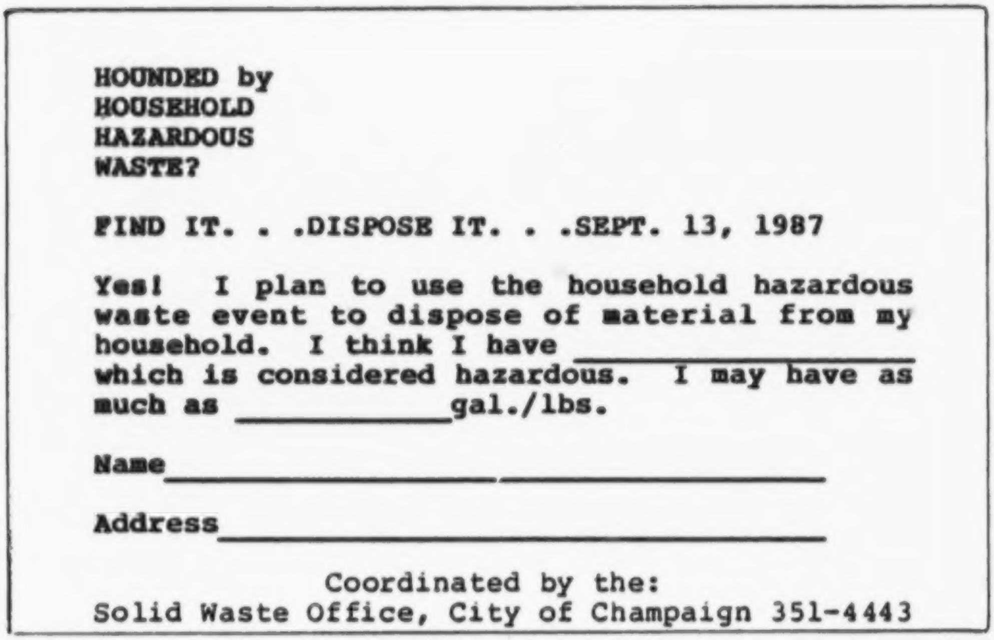
Wearing coverall "moon suits" and breathing helmets, a crew from a hazardous waste disposal firm hired by the solid waste disposal association will take the chemicals from residents at an undetermined location. They will take the materials to a hazardous waste disposal site.

Residents will be notified before the collection what wastes will be accepted. Paint, pesticides, household cleaners, solvents and even some explosives are expected to be delivered to the site, Komadina said.

— CHRIS SCHULTZ

A-3

From: The Champaign-Urbana
News-Gazette, June 1, 1987



HOUNDED by
HOUSEHOLD
HAZARDOUS
WASTE?

FIND IT. . .DISPOSE IT. . .SEPT. 13, 1987

Yes! I plan to use the household hazardous waste event to dispose of material from my household. I think I have ____________________ which is considered hazardous. I may have as much as _____________gal./lbs.

Name____________________ ____________________

Address____

Coordinated by the:
Solid Waste Office, City of Champaign 351-4443

Card handed out at Farm Bureau tent,
Champaign County Fair, July 21-25, 1987

The 100% Recycled Paper

vol 8 no. 4 **COMMUNITY RECYCLING CENTER** July-August 1987

Hazardous Collection Day: September 13th

What do you do with that almost empty gallon of paint you don't want anymore? Where do you put your weed killer container when the weeds have been killed?

The safest way to dispose of toxic or harmful house and garden wastes is to bring them to Champaign's Household Hazardous Waste Collection Day, Sept. 13, 8-5: at the CPW. This is the first kind of collection day ever sponsored in Champaign-Urbana so you may want to check your basements and garages for old supplies of hazardous stuff you've been reluctant to throw away.

The City of Champaign is organizing this one-day event and city staff will be publicizing more details later this summer. You can call Sam Chandler at 351-4443 if you have questions.

One thing is certain--to be successful, the event will need to be generously staffed by volunteers. People are needed to help direct people to the right collection areas, collect info from customers about the materials they are bringing, and to publicize the event. In late August, the city will be distributing door hangers to local residences. If you could put reminders on doors in a few blocks of your own neighborhood, you'll be dearly appreciated! Again, call Sam for information on volunteering.

Hazardous Waste Conference in Illinois

Hazardous waste reduction will be the subject of a major two-day conference to be held in Chicago Sept. 22 and 23. The conference is being sponsored by the Hazardous Waste Research and Information Center (HWRIC), a part of the Illinois Department of Energy and Natural Resources.

The conference will focus on what Illinois industries and government are doing to reduce the amount of hazardous wastes produced at the source and also present an overview of waste reduction efforts nationally. Future waste reduction efforts that both industry and government can pursue will also be discussed.

The conference will provide an opportunity to learn what Illinois industries are doing in waste reduction, according to HWRIC Director Dr. David L. Thomas.

Cleaning Can Be a "Real Pain"

Cleaning your home, garage, basement and yard is not everyone's idea of a fun time. It can be strenuous, time-consuming and even dangerous. In many homes, small quantities of such hazardous chemicals as paint thinners, solvents, drain cleaners, garden and lawn pesticides and wood stains tend to accumulate over time. If improperly stored, these products and many others may create both potential fire hazards and possible health risks.

Quantities of paint, paint thinner, and wood stains are likely to be found in anyone's home. Because these products are highly flammable, they need to be properly stored. This usually means sealing the container after each use and not storing the product near heat or flame.

Continued on Next Page

Syndicated article for Rantoul Press,
Mahomet Citizen, Southern Champaign County
Today (Villa Grove), and County Star (Tolono)

Ag Features
for the week of August 24, 1987

ILLINOIS' FIRST CHEMICAL CLEAN UP DAY SCHEDULED SEPTEMBER 13TH

By Dennis Riggs
Champaign County Farm Bureau

An historical opportunity will occur Sunday, September 13th, 1987 when rural and urban residents of Champaign County will have the opportunity to remove chemical waste from their farms and homes. Any leftover chemical such as old pesticides, solvents or "stuff in an unmarked jug" will be accepted as the Inter-Governmental Solid Waste Disposal Association (ISWDA) sponsors a clean up day for Champaign County.

The ISWDA along with the cities of Champaign, Urbana and Champaign County have received a substantial grant from Successful Farming magazine to kick off this clean up event as a pilot project in the State of Illinois. A major purpose of the event will be to demonstrate the proper way to dispose of old pesticides and other chemicals from farms and homes. The event carries with it the guarantee that any future liability for the disposal of the chemical materials will be held by the company who has been contracted to provide the disposal service. The Company, GSX, Inc. of Greenbriar Tennessee is well respected in properly cleaning up and disposing of practically any chemical material.

Successful Farming Senior Editor Richard Fee noted at a recent meeting with Farm Bureau leaders, "This is a golden opportunity for farmers to get rid of these unwanted chemicals easily, legally and at no cost. We are encouraging farmers to bring in old leftover chemicals that have been gathering dust in the barn or machine shed for several years".

As an extra incentive to farmers, the Monsanto Company of St. Louis Missouri is donating safety goggles to the first 500 participating farmers.

The City of Champaign is loaning its public works facility to be used as the collection sight. Specially trained volunteers and certified chemical experts will be on hand to assist everyone with chemical materials. Individuals will be able to bring approximately 30 gallons to the disposal day at absolutely no cost or obligation. Larger volumes will be accepted on Saturday, September 12th, however prior arrangements must be made with the Champaign Public Works Center and a fee will be charged.

Once the chemicals are collected they will be stored in drums containing a lightweight, highly-absorbent material which will soak up the chemicals which will prevent them from leaking out. The drums will then be placed in containers lined with plastic, a tight clay, and a final layer a plastic. Final destination of the chemicals will be an authorized landfill facility in Tennessee.

Farm Bureau feels that this is one opportunity that looks too good to be passed up by area farmers. It may be your best chance to rid your farm of some potentially dangerous materials while participating in an approved clean up program. A chance like this may not come again.

Chemical Clean Up Day — September 13th

Farmers of Champaign County will have a unique opportunity to properly dispose of unusued and unwanted chemicals during a Hazardous Waste Clean Up Day sponsored by the Inter-Governmental Solid Waste Disposal Association. The event will take place on Sunday, September 13th, 1987 from 8:00 a.m. until 5:00 p.m. at the City of Champaign Public Works Center located at 702 Edgebrook Drive, Champaign.

All local residents are invited to properly dispose of materials that may have accumulated at your farm or in your home over the years. Old pesticides, herbicides, paint solvents, de-greasers and a host of other farm and household chemicals can be brought to the public works center and disposed of free of charge. Residents who have large quantities of hazardous waste (more than 220 pounds) should call ahead and make special arrangements with the disposal company.

A licensed hazardous waste disposal company, GSX, Inc. of Greenbriar, Tennessee, will safely pack the material in secure containers to be legally and properly disposed in an EPA licensed facility.

To participate in the project, you need only to put the materials in a box or preferably in the original container, properly pack them in your car or truck and drive to the Public Works Center that is located just off of Bloomington Road at the Interstate 74 and Prospect Avenue interchange behind the K-Mart store. There is no need to get our of your vehicle when you get there. The service will be "drive through" with specially trained technicians waiting to unload the material from your vehicle.

There will be no charge or no strings attached to the project. The only information that is required is any background information you may have about the chemicals and what township in the county they came from.

Farm Bureau is especially thankful to the publishers of *Successful Farming* magazine, the Meredith Corporation of Des Moines, Iowa for underwriting a substantial portion of this event. By their sponsorship, as well as the Inter-Governmental Solid Waste Association of the City of Champaign, City of Urbana and Champaign County, this program will be able to provide an important service to the residents of Champaign County. It is the first time that any such program has been carried out in the State of Illinois.

If you have further questions concerning the Hazardous Waste Disposal Day, contact the Champaign Public Works Center at 351-4443 or the Champaign County Farm Bureau at 352-5235.

From: Champaign County Farm Bureau News,
September 1987

TWIN • CITIES

B & PWIRE

BUSINESS AND PROFESSIONAL WOMEN

BPWire September 1987 ******* *Champaign, Illinois*

Announcements

The Twin Cities BPW is planning their Membership Drive for October. Details will be available later. The grand prize so far for the most new members brought in by a member is a Brunch for Two at Top of the Inn restaurant. We are still soliciting prizes.

The Membership Caravan is scheduled for September 8th in Danville. New members are invited for a salad supper to meet state officers. Several of our officers will be going. Contact Chris for more information.

You don't want to miss our next Luncheon Meeting, September 9th(see regular announcement). Catherine Ross, Associate Professor of Sociology and Medicine will be the speaker.

The National Leadership Training Conference, sponsored by the National BPW, is scheduled for September 19th in Springfield. The all day seminar at the Hilton is $35.00 for registration and $12.50 for lunch. The topic for the conference is "Success is your Responsibility". Call Chris 352-8130 for more details.

The Fall District Meeting is scheduled for October 11 in Charleston. The speaker will be Sonja Charness, President of the Illinois Federation of Business & Professional Women. Her topic will be "Flight to Freedom".

The IFBPW Legislation Conference is going to be held October 23-24 at the O'Hare Westin. Call Chris for more information.

'88 BPW Foundation Scholarship Program Applications

Applications are available February 1, 1988 - April 1, 1988. The application deadline is April 15, 1988. The awards are announced by July 15, 1988. The second round makes applications available July 1, 1988-September 1, 1988. The deadline is September 15, and the award notification is by December 15, 1988.

September Luncheon Meeting

The September luncheon meeting will be held Wednesday, September 9th at the University Inn, 11:45 a.m. -1 p.m. Our guest speaker will be Catherine Ross, Associate Professor of Sociology and Medicine at the U of I. Ross, a recipient of the prestigious University Scholars award, has published 28 articles and spoke at numerous meetings. Her research focuses on the social aspects of physical and psychological well-being, and she has done studies on married couples and working women, and the relationship between them. Make plans to be there!

Faupel Begins Walk - October 10

Susan Faupel, the Program Coordinator for A Women's Place, a shelter for battered women, will begin her 6-week walk to commemorate Domestic Violence Awareness Week and bring attention to the plight of women who are beaten by their husbands or lovers. The walk, titled "Off the Beaten Path" will begin in Chicago, and end in Little Rock, Arkansas.

Support the effort and purchase a T-shirt (available in S, M, L, XL in silver or beige) for $7.50 or making a donation to Off the Beaten Path, 505 W. Green, Urbana, IL 61801, Attn. Susan Faupel, 384-4462.

1987-88 Federation Focus

The following areas: 1) Pay Equity; 2)Supporting Women in the Workplace; 3) The Changing Family; 4) Involving Women in the Political Process have been designated by the National Federation as areas for each individual chapter to focus on for '87-88. The following is comprised of excerpts from that information, detailed summaries can be found in the February/March issue of National Business Women.

Pay Equity

Pay equity, is a principle that states that persons in jobs requiring the same or comparable skills, training and level of responsibility should be paid equally. Pay equity counteracts the affects of sex and race discrimination by using objective standards for evaluating salary levels. To implement pay equity, job evaluation tools compare jobs using such factors as skills and training required, working conditions, problem-solving responsibilities, and accountability.

According to the Bureau of Labor Statistics' Third Quarter of 1986 report, women now earn 69 cents for every dollar earned by men. Al-

Newsletter of the Twin Cities Business & Professional Women's Club - *"Women Helping Women"* though this represents an improvement in women's earning power, the wage gap between men and women still exists. Many experts feel that a primary cause of the wage gap is job segregation — women continue to be segregated into a few occupations which require skills equal to those required in many male-dominated occupations but command substantially lower salaries. For example, on the average, nurses are paid less than parking lot attendants and teachers are paid less than truck drivers.

Supporting Women in the Workplace

Successfully balancing the demands of work and family has become increasingly important to women today. More women than ever are experiencing the strains of juggling careers with home and family. Outside of the home, where can a working woman get support? She, as well as others in similar situations, can start by approaching their employers. Going to an employer with plans, ideas, and reasons for offering child care provisions for employees or initiating more flexible work schedules is the beginning of a solution. Employers listen when you provide them with data on the potential increase in productivity and profits resulting from such policies.

The Changing Family

Changes in economics, lifestyles, and ideals have changed the structure of today's family. The days when husbands went to work and wives stayed home and took care of the children are virtually gone. Today, fewer than 10% of the population lives in that "traditional family" model.

Economic factors can, in part, explain the growth of two-career couples, the single parent household, the blended family, and the extended family. Today, both parents often have to work in order to support the growing costs of living and raising children. Many are opting for smaller families. More and more people are deciding not to have children at all, and there has been a dramatic increase in the divorce rate as well. Of the 7.1 million female heads of households in 1984, 64.3% had been divorced. Many of these women choose to return to their parents out of economic necessity, creating an increase in extended families. Many choose to remarry. In 1982, three fourths of women and men remarried within three years; hence a rise in the blended family.

Involving Women in the Political Process

Throughout history, women have been an active force in the political process by opposing slavery, working for civil rights, and promoting world peace. But with the defeat of the Equal Rights Amendment, many question the momentum and power of the women's movement today. Where are we today and how can we keep the movement going?

The women's movement is not dying. Although the ERA was defeated in 1982, the number of women activists across the country is growing. Today, we must focus on unity and address the problems of all women: homemakers, women of color, working mothers.

According to Louis Harris national polls taken in 1984, women are less likely than men to support all issues dealing with the military, defense spending, and capital punishment. Women's concerns primarily deal with economics, family, peace, insurance, pension and social security; while men list crime, drugs, welfare, communist aggression and government spending as being more important. Since women's concerns are different, their votes are important in the outcome of nine senatorial candidates. During that same election period, more women managed campaigns, raised money and ran for political office than ever before. Women today must realize the voting power they possess; women's votes have proven to make a difference.

Notice

Household Hazardous Waste!

Attention Champaign Area Residents. You can properly dispose of hazardous waste chemicals (old pesticides, herbicides, paint solvents, degreasers and other harmful household chemicals) by bringing them to the Champaign Public Works Center, 702 Edgebrook Drive. Help keep your environment free of hazardous materials.

Where?
Champaign Public Works Center

When?
Sunday, September 13, 1987 - 8 am to 5 pm.

Questions? *Call 351-4443*

BPW Calendar of Events

September 8	Membership Caravan	Danville
September 9	TCBPW Luncheon	Champaign
September 19	BPW Natl' Leadership Training	Springfield
October 11	Fall District Meeting	Charleston
October 18-24	Natl' Business Women's WK	
October 23-24	State Legislative Conf.	Chicago
January 30	TCBPW Special Project	Champaign
March 27	Spring District Meeting	Rantoul

BEST COPY AVAILABLE

HAZARDOUS WASTE RESEARCH AND INFORMATION CENTER
1808 Woodfield Drive
Savoy, Illinois 61874
217/333-8940

FOR IMMEDIATE RELEASE

CONTACT: Sam Chandler
351-4443

If you throw your old paint, cleaning products, or pesticides into the garbage, you may be polluting the environment with hazardous wastes. But until now, there was no safe way to dispose of these materials. On September 13, Champaign County residents will have an opportunity to safely dispose of these and other unwanted hazardous materials they may have in their homes.

Illinois' first "Household Hazardous Waste Collection Drive" will be held on that day in the Champaign Public Works Center, 702 Edgebrook Dr., from 8 a.m. to 5 p.m.

"Champaign County residents can bring their household hazardous wastes --such as old paint, automotive products and pesticides -- to a supervised collection site instead of throwing them in the garbage or pouring them down the drain where they could eventually leak into the ground water," Sam Chandler, Champaign Solid Waste Coordinator, said.

Hazardous waste from farms will also be collected in the day-long event.

The drive is being sponsored by the Champaign-Urbana Intergovernmental Solid Waste Disposal Association and Succesful Farming Magazine. Successful Farming Magazine has donated $30,000 to the program so that farm wastes may also be collected. The

Illinois Hazardous Waste Research and Information Center (HWRIC) is also assisting the cities with the collection program.

Residents will bring their household hazardous waste to the collection site where employees from GSX Services, a Tennessee-based licensed hazardous waste disposal firm, will remove the wastes directly from cars. The wastes will be identified, separated and packed into 55 gallon drums. After the collection drive, the wastes will be taken to a GSX's specially designed hazardous waste facility in Tennessee for disposal.

Many people see hazardous waste as only an industry problem, but there is growing concern about the hazardous products thrown away by the average householder.

Most garbage from households ends up in municipal landfills. But these landfills are usually not built to contain the hazardous wastes many people throw in the garbage. Once in the landfill, these hazardous chemicals can leach through the soil into ground water or run off into streams, rivers and lakes, where they can pollute drinking water resources.

Because the federal and state governments do not have disposal restrictions or regulations for household hazardous waste, it is difficult to get accurate figures on how much there is. However, it is estimated that each household generates up to 6 1/2 gallons a year.

"Garbage is something people don't like to think about or discuss," Christina Komadina, HWRIC Public Information Officer said. "We put it in bags and forget it -- out of sight, out of mind."

This collection drive will provide a safe disposal solution for people who are concerned about the environment and who don't know what to do with their household hazardous materials.

If you have old paint, pesticides, household cleaners or other household hazardous waste and would like more information on the collection drive, contact the Champaign Public Works Department at 351-4443. Farmers who have large quantities of wastes to dispose of should call a few days ahead of the drive so special arrangements can be made.

##

Intergovernmental Solid Waste Disposal Association
702 Edgebrook Drive
Champaign, Illinois 61820

U.S. Postage
PAID
Permit No. 170
Champaign, IL

HOUNDED by HOUSEHOLD HAZARDOUS WASTE?

Mailed Flyer (outside)

Household Hazardous Waste

On September 13, 1987 from 8 a.m. to 5 p.m. the Intergovernmental Solid Waste Disposal Association will sponsor a household hazardous waste disposal event in the City of Champaign Public Works Center at 702 Edgebrook Drive.

Residents who live in Champaign, Urbana, and Champaign County are invited to properly dispose of household hazardous material that may have accumulated in the home over the years. Old pesticides, herbicides, paint solvents, degreasers and a host of other household chemicals (for a listing of typical household hazardous waste chemicals, call 351-4443) can be brought to the Public Works Center September 13, where, free of charge*, a licensed hazardous waste disposal company will safely pack the material in secure lab packs to be legally and properly disposed of in an EPA licensed facility.

Please help us help you keep our environment free of hazardous materials.

WHERE? Champaign Public Works Center

WHEN? Sunday, September 13, 1987 — 8 a.m. to 5 p.m.

HOW? It's easy . . . put the materials in a box in the original container if possible, get in your car and drive to the Center. No need to get our of your car when you get there . . . we'll have drive through service . . . our technicians will be waiting to unload the material from your car. It will be fast and easy . . . remember, this is one part of a program to help us solve our solid waste disposal problems in Champaign County.

*Residents who have larger quantities (more than 220 lbs.) of waste should call ahead and make special arrangements with our disposal company. Call 351-4443.

NOTICE

Household Hazardous Waste! We Want It!

September 13, 1987

Our technicians are standing by . . .
drive up service, no need to get out of your car!!!

It's FREE

QUESTIONS? . . .
Call 351-4443
It's fast! One stop service!

WHERE?

The Champaign Public Works Center
702 Edgebrook Drive

WHEN?

Sunday, September 13, 1987, 8 a.m. to 5 p.m.

Sponsored by the Intergovernmental Solid Waste Disposal Association of the City of Champaign, City of Urbana, and Champaign County. Funded by the Association, and the Meredith Corporation of Des Moines, Iowa, publishers of *Successful Farming*. Licensed hazardous waste disposer under contract with the Association is GSX, Inc. of Greenbrier, Tennessee.

Mailed Flyer (inside)

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Where?

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702 Edgebrook Drive.

When?

Sunday, Sept. 13, 1987
8 a.m. to 5 p.m.

Sponsored by the Intergovernmental Solid Waste Disposal Association of the City of Champaign, City of Urbana, and Champaign County. Funded by the Association, and the Meredith Corporation of Des Moines, Iowa, publishers of *Successful Farming*. Licensed hazardous waste disposer under contract with the Association is GSX, Inc. of Greenbrier, Tennessee.

Doorhanger
(front side)

HOUSEHOLD HAZARDOUS WASTE

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Sponsored by the Intergovernmental Solid Waste Disposal Association of the City of Champaign, City of Urbana, and Champaign County. Funded by the Association, and the Meredith Corporation of Des Moines, Iowa, publishers of *Successful Farming*. Licensed hazardous waste disposer under contract with the Association is GSX, Inc. of Greenbrier, Tennessee.

Doorhanger
(back side)

Waste board to hold collection drive

by Cheryl Walcer

Sunday will present the first opportunity for area residents to dispose of any hazardous waste materials they may have around their houses.

Illinois' first "Household Hazardous Waste Collection Drive," sponsored by the Intergovernmental Solid Waste Disposal Association, will be held for county residents Sunday from 8 a.m. to 5 p.m. at the City of Champaign Public Works Center, 702 Edgebrook Drive, Champaign.

The cleanup day provides an opportunity for anybody with old household or farm chemicals such as paints or insecticides to dispose of them properly instead of pouring them down the drain where they can leak into the soil and pollute drinking water resources.

The service is free, and depending on the results of the surveys completed, projects like this will continue in the future, he said. "We still need to find a way to effectively get rid of all waste materials," said Sam Chandler, project manager at the Champaign Public Works Center

Chandler said he believes the problem is "really that dangerous."

"It is important to control and dispose of all of the waste materials properly so that we can keep the area clean," he said.

Most household garbage ends up in municipal landfills, the closest being the Champaign-Urbana Landfill, 1210 E. University Ave., Urbana, Chandler said. Design standards for the landfill may have to be changed to reflect the needs of the community if more people than expected turn out Sunday, although all materials collected then will be disposed of by a licensed hazardous waste disposal company, GSX Services, of Greenbriar, Tenn.

Similar projects like this one were implemented in Madison, Wis., and Cedar Rapids, Iowa. Chandler said they considered them a success in terms of the number of people who took advantage of the opportunity. According to those results, he said he expects that the turnout here will be comparable because of a survey conducted this summer by a University professor.

Roland Liebert, research associate professor in the Survey Research Lab, said he found in his survey that an estimated 5,482 Champaign households are holding hazardous waste materials they no longer want to keep in their homes.

A major goal of the project is to find out from where all of the waste is coming and when it was purchased, Chandler said. Residents who bring in unwanted materials will have to fill out a survey to provide this information.

To participate in the cleanup project, go to the Public Works Center located southeast of the Interstate 74-Prospect Avenue interchange behind the Champaign K-Mart Discount Store.

From: Daily Illini,
September 11, 1987

Hazardous waste to be collected

Residents urged to drop off questionable household chemicals

By CHRIS SCHULTZ
News-Gazette Staff Writer

It's time to gather up those odd containers of questionable chemicals lurking in basements, sheds and barns.

On Sunday, the Intergovernmental Solid Waste Association will hold the first household hazardous waste collection "event" in Illinois.

The collection also will be open to members of the agricultural community. The Meredith Corp., publisher of "Successful Farming" magazine, donated $30,000 to expand the collection event to include farmers.

The collection will last from 8 a.m. to 5 p.m. at the city of Champaign public works yard, 702 W. Edgebrook Drive. Technicians from GSX Corp., a hazardous waste disposal company, will pick up the hazardous wastes, said Sam Chandler, Champaign solid waste disposal coordinator.

Among likely candidates are oven cleaners, ammonia, antifreeze, transmission fluid, paint thinner, ant killer, swimming pool chemicals and flea powder.

"These things are great when used as intended, but the problem develops when you have leftovers sitting around the house," said Chandler. "We want to find out the extent of the material out there and encourage people to dispose of it properly."

Quantities in city homes may be small, but farmers who depend on powerful chemicals to kill insects and weeds often have larger amounts.

"There always is something left in the bottom of the barrel, but it's hard to throw away something you paid $50 a gallon for, so you save it," said Dennis Riggs of the Champaign County Farm Bureau, which advised its members about the program and will help out during the collection Sunday.

"At my own farm, I've found some things I'm not sure about," he said. "This way, I won't be endangering myself and my family, or any livestock."

GSX will dispose of them at its hazardous waste disposal site in Tennessee.

The products should be kept in their original containers if possible and placed in a cardboard box in the car trunk or back of a pickup truck for easy handling at the collection site, Chandler said.

If there's any question about what's in a container, bring it, said Chandler. The GSX technicians will analyze it for disposal.

Participants will be routed through the main gate at the south entrance, said Chandler. Once their waste is collected, they will be directed to the Hagen Street exit.

Visitors who drive up to the gate will be stopped and asked to complete a short questionnaire developed by the Survey Research Labs of the University of Illinois. The surveys will be collected before they leave the public works grounds.

The questionnaire will ask participants what they brought, what their attitudes are toward the environment and whether their community has a recycling program.

There are some materials that should not be brought to the collection site, said Chandler.

Latex paint is not hazardous. Organizers of the event don't want to see it, but there will be a paint collection area for those who bring it. Household garbage isn't wanted either, but there will be a place for that, too, said Chandler.

Explosives aren't welcome, either.

However, if someone absolutely has to bring some in, the Champaign Fire Department's hazardous waste reaction team will be there to handle it.

What may be uncomfortably common are dioxin-based herbicides. Absolutely no one at the collection site will handle the stuff, said Chandler.

Banned by the federal government in the mid-1970s, the chemical was a part of the infamous Agent Orange herbicide.

Although the U.S. government is looking for a site where dioxins can be stored, that's cold comfort to the farmer who wants to get rid of the poison now.

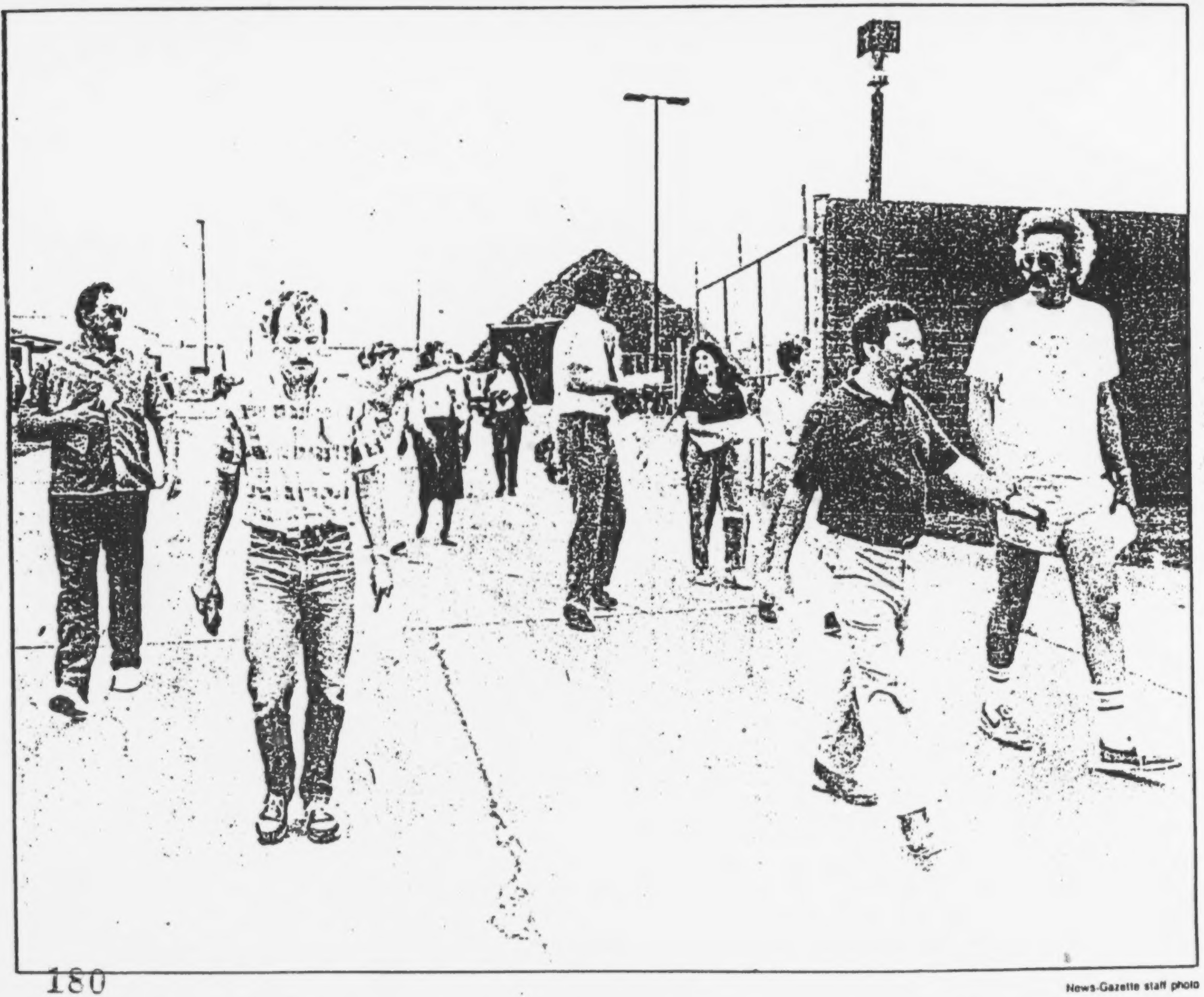
"There is no place in the U.S. who will take it (for disposal)," said Chandler. "We're talking about one of the most lethal compounds we know."

Those bringing their wastes to the site won't go away empty-handed, either. Monsanto and Dow chemical companies gave the ISWDA free goggles, rubber gloves and plastic "booties" to be handed out to participants, Chandler said.

Although castoff household chemicals are legally exempted as hazardous waste, there are products that contain chemicals considered dangerous to animals and humans.

The ISWDA planned the event to start removing some of these potentially hazardous materials before they reach the landfill shared by Champaign, Urbana and the county.

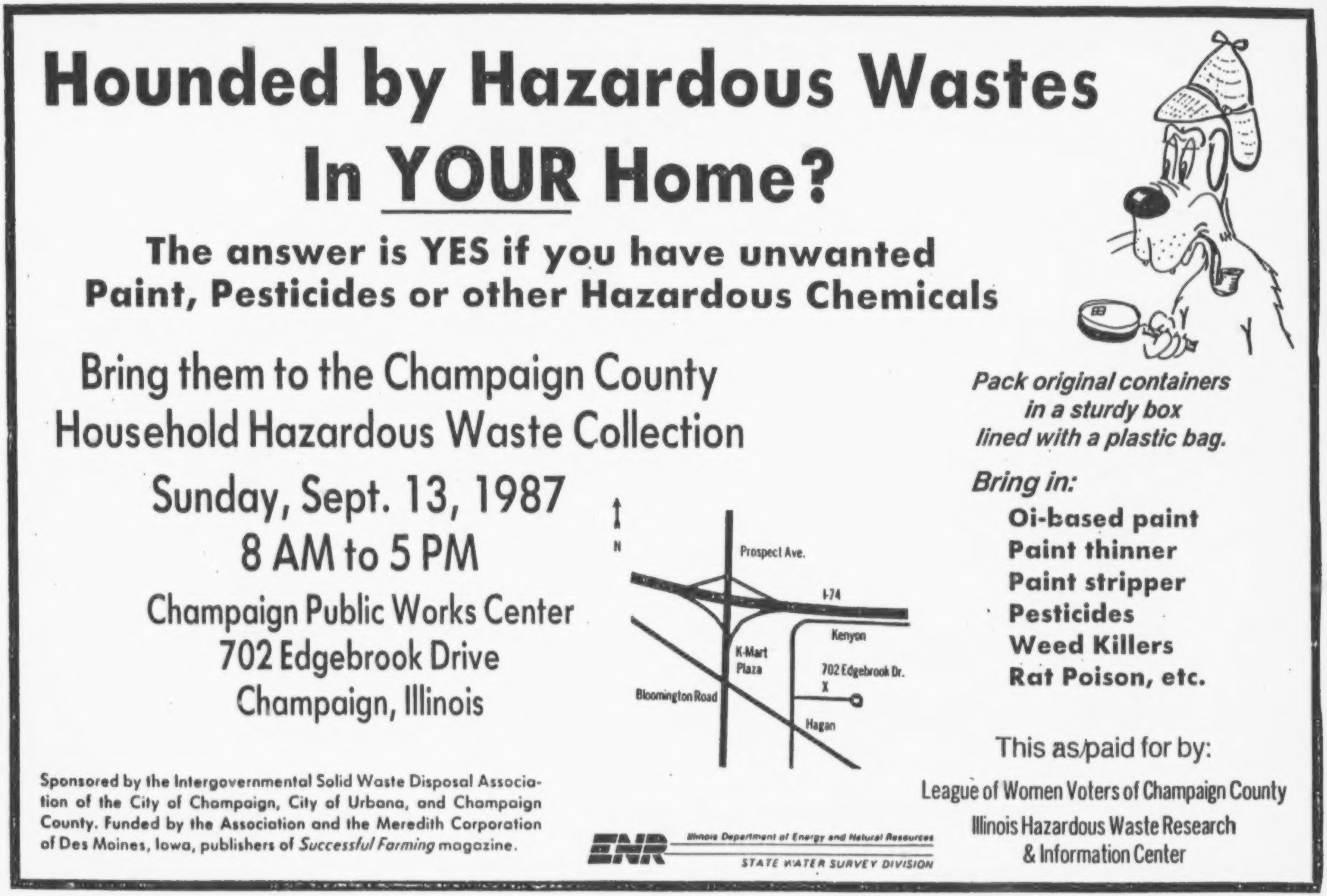
From: Champaign-Urbana
News-Gazette, September 12, 1987



News-Gazette staff photo

Members of the Intergovernmental Solid Waste Association leave the Champaign public works facilities at 702 W. Edgebrook Drive, after a meeting Friday. The group will sponsor a collection of household hazardous waste items on Sunday.

From
Champaign-Urbana
News-Gazette,
September 12,
1987



Hounded by Hazardous Wastes In YOUR Home?

The answer is YES if you have unwanted Paint, Pesticides or other Hazardous Chemicals

Bring them to the Champaign County
Household Hazardous Waste Collection

Sunday, Sept. 13, 1987
8 AM to 5 PM

Champaign Public Works Center
702 Edgebrook Drive
Champaign, Illinois

N
Prospect Ave.
I-74
Kenyon
K-Mart Plaza
702 Edgebrook Dr.
X
Bloomington Road
Hagan

Pack original containers in a sturdy box lined with a plastic bag.

Bring in:

Oi-based paint
Paint thinner
Paint stripper
Pesticides
Weed Killers
Rat Poison, etc.

Sponsored by the Intergovernmental Solid Waste Disposal Association of the City of Champaign, City of Urbana, and Champaign County. Funded by the Association and the Meredith Corporation of Des Moines, Iowa, publishers of *Successful Farming* magazine.

ENR Illinois Department of Energy and Natural Resources
STATE WATER SURVEY DIVISION

This as/paid for by:

League of Women Voters of Champaign County
Illinois Hazardous Waste Research & Information Center

From: Champaign-Urbana News-Gazette, September 12, 1987

Hazardous waste collection's haul surpasses plans

By ANNE COOK
News-Gazette Staff Writer

City and rural residents brought so much hazardous waste to Champaign's municipal garage Sunday that sponsors of the collection program ran out of money by 11 a.m. and out of space by 1:30 p.m., three hours early.

"We started with a (dollar) contract with the collection company, and by 11 a.m. we had come close to exceeding it," said Richard Larson, Champaign's public works director, who supervised activities at the Edgebrook Drive garage.

Larson and his Urbana counterpart, Jim Darling, quickly polled members of the Intergovernmental Solid Waste Disposal Association and came up with an extra $30,000 from "contingency funds" to pay GSX Services, Inc., based in Tennessee, to remove two truckloads of hazardous chemicals farmers and city dwellers had cleaned out of their garages, basements and sheds.

"It was a smashing success," Larson said. "I hope we don't have to go any longer than a year before we can do it again."

An estimated 25,000 pounds of chemicals were collected from about 350 households, "and we turned that many people away," Larson said. Officials first intended to load only one truckload of waste and originally set the total price tag at about $55,000.

A STEADY STREAM of cars lined up at the garage starting about 7 a.m.. When the doors opened at 8 a.m., drivers first answered questions about the waste they were dumping, then lined up at the petroleum products, latex paint and other materials lines.

"There's some nasty stuff out there," said Dave Thomas of Urbana's Hazardous Waste Information and Research Center, who was collecting oil in the petroleum products line.

Thomas said volunteers inspecting the cars were rejecting some of the chemicals, like Silvex, because they were contaminated with dioxins, a carcinogen, and GSX could not accept them.

"The government hasn't come up with any good way to dispose of it," he said.

Bob Hoffswell drove his bright green 1949 Chevrolet truck through to the "other materials" line so workers could unload several drums of paint stripper.

"I inherited it at a building I bought at Mahomet," said Hoffswell, an electrical engineer at the University of Illinois.

HE DISPLAYED TWO cans of rejected dioxin-based chemicals, one a flea spray and one for wiping out web worms.

"I've always been aware of the dangers of storing chemicals, but the problem is what to do with them," Hoffswell said. "I think it's a very good idea to hold a day like this periodically."

Dennis and Molly Fiesner, who followed Hoffswell through the line, dropped off cartons of old farm chemicals.

"This stuff has been laying around the shed for 10 years and would probably still be there if we hadn't had this chance to get rid of it," said Fiesner, who farms near Gifford.

"We have a 2-year-old and a 6-year-old, and chemicals are a constant worry," Molly Glesner added.

Dennis Riggs, a Champaign County Farm Bureau volunteer who helped unload the chemicals, said he brought in loads from four neighboring Longview area farms when he reported to work.

"What's ironic is, all this stuff is coming in here, and a lot of it's going out the front door at K-Mart at the same time," Riggs said. "I guess responsible usage is the most important lesson we can learn here. You don't want to overbuy any chemical."

GSX project manager Eric Pegram said demand for hazardous waste disposal has grown steadily since his company was founded in 1978.

Pegram said GSX cannot handle radioactive material, explosives, biological specimens or dioxin-based materials because it has no disposal outlets for them.

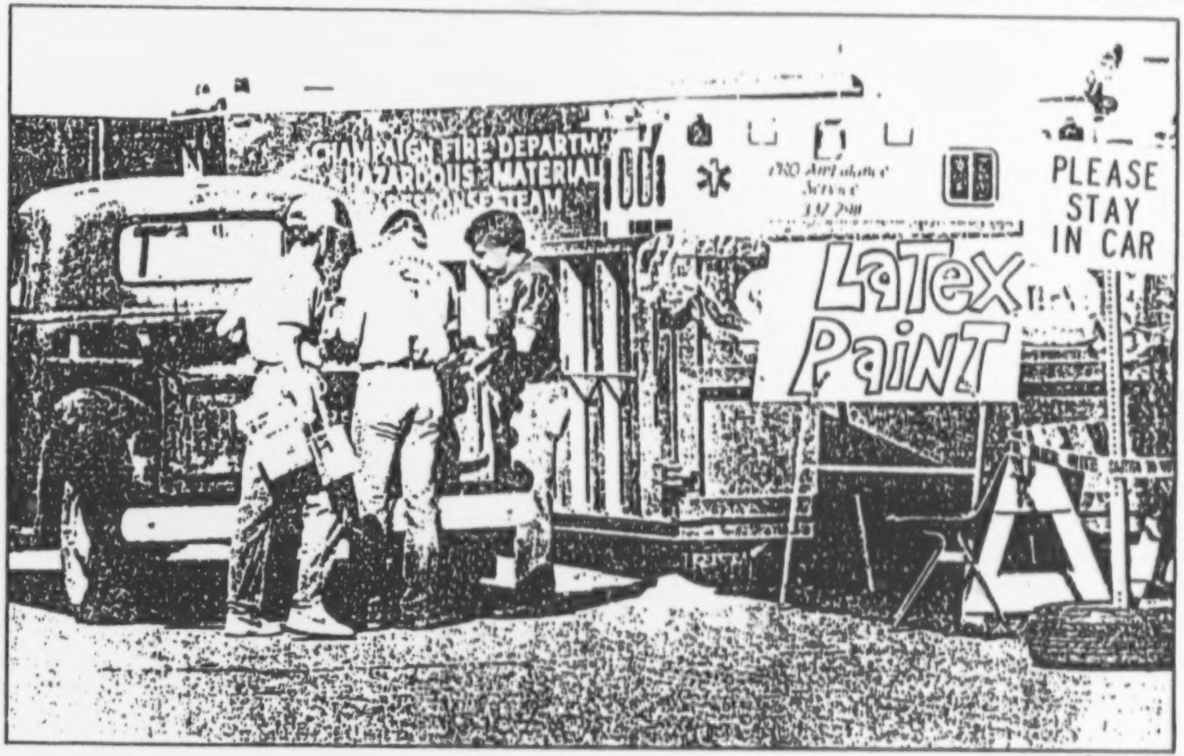
Waste collected at Champaign will be hauled to a site in either South Carolina, Maryland, Arkansas, Louisiana or Chicago, he said.

Darling, head of Urbana's public works department, said the day gave area residents a chance to put some personal effort into cleaning up their own environment.

"Everyone complains and criticizes and tries to make environment protection someone else's job," he said. "This is something they can do themselves."

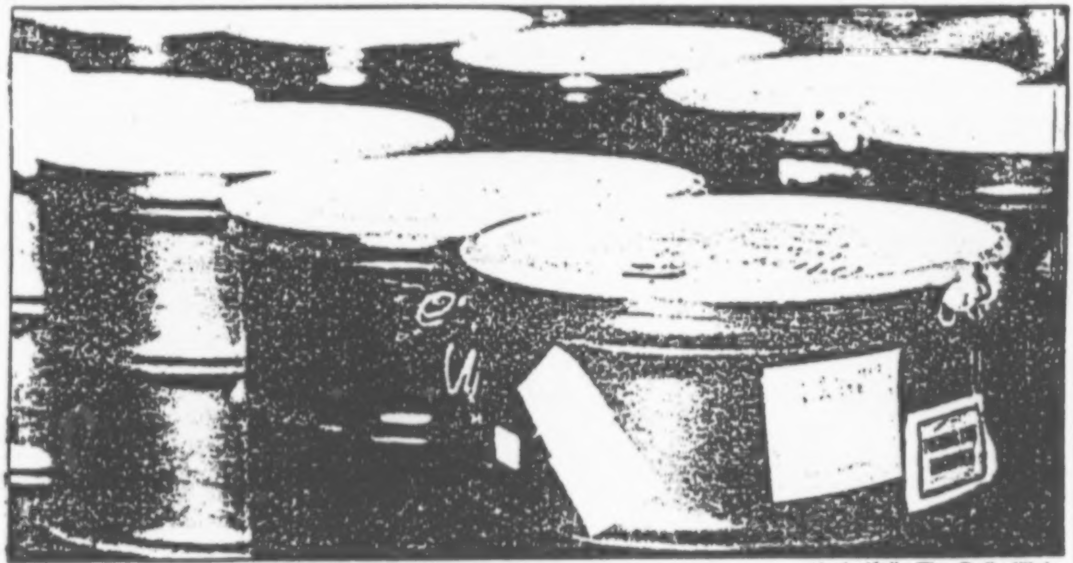
"Also, everything we've collected here is one more thing that's not going into the local landfill, and maybe the aquifer," said Larson.

Both cities and Champaign County helped pay for the program, and Successful Farming magazine contributed $30,000 so the collection could include farm chemicals



Associated Press

Workers remove latex paint from a pickup as part of the hazardous waste collection program. The event Sunday brought in 25,000 pounds of chemicals, surpassing the space and money alloted for hauling them.



Kevin Kelly The Daily Illini

Hazardous waste drums sit at the Champaign Public Works Center, 702 Edgebrook Drive.

Sponsors laud public's effort to dispose of hazardous waste

by Cheryl Walcer

The "most successful hazardous waste diversion event" in the United States took place last Sunday when county residents filled 175 55-gallon drums with waste materials, according to the sponsor of the project.

The Intergovernmental Solid Waste Association sponsored the event, which was held at the Champaign Public Works Center, 702 Edgebrook Drive, Champaign.

The project was so successful that it had to shut down at 2 p.m. Sunday because of a lack of space for any more waste materials, according to Sam Chandler, Champaign Public Works Department spokesman.

On average, each car brought in 30 to 40 pounds of hazardous waste materials, while other projects around the country have netted 5 to 10 pounds per car, Chandler said.

He said the project received a lot of "exotic stuff" such as phenobarbital (a controlled drug), numerous solvents, paint thinners, Hartz Blockade (a flea and tick spray that may be linked with causing violent reactions in pets) and more than two tons of DDT (dichlorodiphenyltrichloroethane).

People who brought in dioxins, also known as agent orange, had to be turned away, however. Chandler said the project could not take the material because no safe way to dispose of it exists.

Chandler said 295 individual cars brought materials to the project, and even though the number of people who participated was less than expected, the poundage was more than they had anticipated.

"Even though we had the most successful drive ever, we still only collected less than 1 percent of the known hazardous waste materials out there," Chandler said. "This is not something that's going to go away."

Because of the favorable turnout, Chandler expects more projects to take place in the area about every six months, provided they receive future funding.

He said he feels the program helped to heighten public awareness and hopes consumers will buy fewer amounts of these types of materials.

Opinions

Hazardous waste event rates encore

The community's household hazardous waste collection day turned into such a success that organizers had to turn people away.

About 25,000 pounds of chemicals from some 350 households were dropped off while another 350 people were sent home with their hazardous waste. The event, which was supposed to last from 8 a.m. to 5 p.m., was called off at 1:30 p.m. when the collectors ran out of room.

This kind of turnout indicates that a hazardous waste collection program is long overdue. Unfortunately, budget constraints may prohibit the community from holding such a waste pickup any time soon.

Getting rid of one truckload of waste costs $55,000. The community filled two trucks Sunday. A $30,000 grant from Successful Farming magazine helped cut those costs this time.

The program, sponsored by the Intergovernmental Solid Waste Association, was billed as the first household hazardous waste collection event in Illinois.

Collection included oven cleaners, ammonia, antifreeze and paint thinner. These are not the kind of things we'd like to see end up in the landfill. But chances are if residents have nowhere else to put this hazardous waste, they'll just dump it in with the rest of the garbage and it will end up in the landfill.

But since residents obviously indicated a willingness to dispose of these chemicals safely, local government should do its part to see that they are given the chance. Government, no doubt, says fine, but where will the money come from? Maybe from the very companies that manufacture these dangerous chemicals.

Monsanto and Dow chemical companies donated goggles, rubber gloves and plastic booties to participants. If the companies are willing to make this kind of donation, why not see if they would agree to donate funds for the collection.

It may sound like a naive suggestion. After all, if the companies donate to Champaign-Urbana, why not to other communities? While that's true, it may just be that no other community ever asked before. The worst that could happen would be a "no" from the companies.

Local service organizations shouldn't be overlooked either. If local clubs can raise thousands of dollars for worldwide famine victims, then surely they can raise money to help protect their own environment.

The other alternative is to use local government funds for another collection. But the solid waste association already is on shaky ground with funding because of delays in opening a new landfill.

It could be a year before the intergovernmental solid waste association can afford to hold another pickup. Let's not wait that long. The residents of this community seem truly interested in careful waste disposal. Let's see that they can act on that interest through the help of companies that care.

— N-G Editorial Board

Hazardous Waste Clean Up A Huge Success

GSX
HAZARDOUS WASTE COLLECTION

People starting arriving at 7:30 a.m., they had to be turned away by 1:30 p.m., in between a second semi-trailer had to be contracted to handle over 25,000 pounds of hazardous waste dropped off by over 300 cars and trucks that passed through the Champaign Public Works Center.

The event was the Rural/Urban Hazardous Waste Clean Up Day held on Sunday, September 13th. The event was scheduled to run from 8:00 a.m. until 5:00 p.m., but due to the tremendous volume of materials brought in, officials had to close the gates early.

The program, which was the first of its kind conducted in the State of Illinois, was deemed a success by Sam Chandler, the City of Champaign's Coordinator of the event. "People brought in everything from bags of old farm pesticides to cans of flea spray. We had over three tons of DDT brought in. It was simply amazing the range of materials brought in," Chandler said.

As residents drove through the building, the material was unloaded and separated by specially trained technicians before being packed in secure containers that will be disposed of legally and properly in an EPA-licensed facility.

(Continued on page 3)

Tom Wolfe is an Illinois Farm Bureau County Manager trainee currently working in the Champaign County office. Tom is a recent graduate of the University of Illinois in Agriculture Communications.

From: Champaign County Farm Bureau News,
October 1987

Hazardous Waste Clean Up *(Continued from page 1)*

GSX
HAZARDOUS WASTE COLLECTION STATION

GSX, Inc. of Greenbriar, Tennessee, the licensed hazardous waste disposal company contracted for this job, spent nearly two days packing the material.

The Farm Bureau is especially grateful to the publishers of *Successful Farming* magazine and the Meredith Corporation of Des Moines, Iowa for underwriting a substantial portion of this event. By their sponsorship as well as the Inter-Governmental Solid Waste Disposal Association of the City of Champaign, the City of Urbana and Champaign County, this program provided a obviously much-needed service to the residents of Champaign County.

We would like the farmers of Champaign County, who participated in the event, to contact the Champaign County Farm Bureau at 352-5235, to share your views and ideas.

GSX
ARDOUS WASTE COLLECT

Illinois holds its first drive to collect hazardous waste

Illinois' first hazardous waste collection drive was an overwhelming success.

An estimated 25,000 pounds of hazardous wastes from Champaign County homes and farms were brought to the Champaign collection site within five and one-half hours. The response was so great that the collection efforts were forced to stop three and one-half hours early because the disposer's barrels and trucks had been filled to capacity.

The collection was sponsored by the Champaign-Urbana Intergovernmental Solid Waste Disposal Association. A $30,000 grant from Meredith Corporation, publishers of *Successful Farming* magazine, enabled county farms to be included in the collection drive.

Wastes ranging from common household products, such as drain openers, oven cleaners, varnish, and oil-based paints, to large quantities of banned pesticides from farms were turned in by residents. Employees from GSX, a Tennessee-based hazardous waste disposer, removed the wastes from the incoming vehicles and sorted and prepared the hazardous substances for disposal.

"This collection drive proved there are large amounts of fairly toxic materials out there that could end up in municipal landfills or be dumped in fields or along roadsides," said David L. Thomas, director of ENR's Hazardous Waste Research and Information Center (HWRIC), located near Champaign in Savoy.

"Wastes containing dioxins, extremely toxic substances used in 'agent orange,' are good examples," said Thomas. "We began keeping track of dioxin-contaminated wastes when the collection began at 8:00 a.m. We estimated that 43 gallons were brought in. One person alone had 15 gallons of a pesticide containing dioxins. A lot of Silvex and 'Weed-B-Gon®,' both of which contain dioxins, showed up from homes and farms.

GSX
TE COLLECTION STAT

Photo by Linnea Eschenluhr, HWRIC

A GSX employee prepares a barrel of household hazardous waste at the collection site for shipment to a disposal facility.

"Unfortunately, there is no legal means of disposing of dioxins at this time, and the disposer did not have a permit to collect it. There was no choice but to carefully wrap the containers in plastic and return them to their owners with instructions to store them until regulations allow for collection of dioxins."

The banned pesticide DDT was also collected in fairly large quantities. Some 1,600 pounds were collected from a bankrupt farm the day before the collection drive. One farmer brought in a 55-gallon drum half-filled with the chemical. The GSX employees disposed of all of the collected DDT.

In conjunction with the Champaign County collection drive, HWRIC sponsored a three-part survey of Champaign-Urbana area residents. The survey research laboratory of the University of Illinois at Urbana is conducting the survey. A precollection random telephone survey assessed the public's knowledge about household hazardous wastes before the publicity and education program for the collection drive began. A questionnaire handed out at the site during the collection asked participants what wastes they had, how they heard about the collection, and their opinion about the program in general. A postcollection telephone survey of residents' awareness and knowledge of household hazardous wastes will help assess the effectiveness of the education and publicity associated with the drive.

This first Illinois collection underscores the need for public education about hazardous products commonly found around the house and for information on less harmful alternatives. By purchasing fewer harmful products, making wiser use of those we deem essential, and using good consumer sense, we can all help cut down on the amount of hazardous wastes entering the environment. This requires reading the labels, substituting nonhazardous products for hazardous ones, and buying only the quantities needed to get the job done.

For a free poster detailing common household hazardous substances, disposal suggestions, and alternative products, call HWRIC at (217) 333-8940. ☆

Ethanol *continued*

injectors are capable of being more precisely controlled. A microprocessor controlled the amount of alcohol injected, allowing the engine to use the maximum amount of alcohol without misfiring or causing damaging knock.

Dynamometer tests of the engine showed that up to 35 percent of the diesel fuel could be replaced by ethanol at full loads, and as much as 90 percent could be replaced at idle. Wet ethanol as low as 100 proof proved to be marginally more efficient than 200 proof ethanol, an important result since wet ethanol is less expensive than diesel fuel and much cheaper than 200 proof ethanol. Tests conducted with methanol showed substantially less satisfactory performance.

The result is a system that can be retrofitted to, or supplied as a factory option on, existing diesel engines. The system is adaptable to different engines and fuel combinations by reprogramming the microprocessor.

Further study of this system is continuing. Dr. Carroll Goering of the university's agricultural engineering department is transferring the system from the laboratory to a heavily instrumented International Harvester tractor for on-the-farm field testing to be conducted this fall. Future plans include testing the system on city buses and on over-the-road trucks.

Savage and White continue to study the interaction of ethanol and diesel during combustion in the laboratory engine to determine how damaging knock occurs. They hope to be able to reduce the occurrence of this type of knock by controlling the ethanol proof and the intake air temperature.

Savage is also developing a method to produce a synthetic diesel fuel by combining ethanol with vegetable oils. The vegetable oils are thermally cracked in a high-temperature distillation system, then converted with ammonia and wet ethanol to form a hydrocarbon "soap" that has characteristics similar to diesel fuel. The synthetic fuel has performed well during tests in small one-cylinder laboratory diesel engines. Refinements of the chemical production process and tests in larger engines are planned for the future. ☆

People's forum: Letters to the editor

Hazardous waste event raises public awareness

To the Editor:

We at the Hazardous Waste Research and Information Center appreciated your editorial "Hazardous waste event rates encore" (Sept. 23) and want to share insights from our 18-month-long experience with encouraging household hazardous waste collection programs statewide and our involvement in the local drive.

In November 1986 we sponsored a statewide round-table forum (including an Intergovernmental Solid Waste Disposal Association member) to discuss how interested communities can develop programs. Subsequently, it was through our contacts with Successful Farming magazine that Meredith Corp. donated $30,000 to the association, which enabled it to include county farm waste in our local drive.

We have also helped state legislators develop an household hazardous waste collection bill (HB 1667) sponsored by Rep. Breslin (D-75th Dist.) and Sen. Holmberg (D-34 Dist.), which creates a yearly grant program of $500,000 for local collection drives. The bill unanimously passed both houses but was vetoed this month. An override is possible in the fall veto session, and those wishing to support it should write their local representative. State support is necessary for a truly successful program.

These drives remove toxic materials from homes and farms, divert them from landfills and also increase public knowledge about the chemicals we use daily. Through increased awareness we may eventually use fewer toxic products and more wisely use those we deem necessary.

We have funded a $30,000 survey conducted by the University of Illinois Survey Research Laboratory to assess the educational impact of the local collection drive.

Pre- and post-collection drive surveys are helping us determine the educational benefits of these drives and how best to reach the public with information.

Our organization is a part of the Illinois Department of Energy and Natural Resources and is administered locally by the State Water Survey.

DAVID THOMAS
Hazardous Waste Research
and Information Center

Savoy

From: Champaign-Urbana News-Gazette,
October 8, 1987

A-30

Waste collection drew farm materials best

By CHRIS SCHULTZ
News-Gazette Staff Writer

Champaign County's collection of household hazardous waste last September attracted those who needed it most, according to a University of Illinois survey.

"We were selectively getting those who had a lot to get rid of," Roland Liebert told the board of the Intergovernmental Solid Waste Disposal Association Wednesday.

Liebert, of the University of Illinois Survey Research Laboratory, directed a three-part survey to measure the success of the Sept. 13 hazardous waste collection, which was the first of its kind in Illinois.

The association and the state Hazardous Waste Research and Information Center requested the survey.

Surveys were taken in July, during the collection and shortly after, to measure its success.

Wednesday's report was from the July and September surveys, Liebert said. Results from the final survey won't be ready for another month.

Slightly less than 1 percent of the city dwellers turned over their hazardous waste for collection, said Liebert. That's average compared to other hazardous waste collections in other parts of the country, he said. But that 1 percent brought in about one-third of the number of containers of hazardous waste people said they wanted to dispose of in July, said Liebert.

What was "outstanding" was that more than 5 percent of the farms in the county sent hazardous wastes in for disposal, Liebert said. This was the first collection of farm hazardous wastes in the country.

The volume of farm hazardous waste also was unexpected.

"Farmers brought more than twice of what they said they wanted to get rid of in July," said Liebert.

Sponsored by the disposal association and Successful Farming magazine, the event drew 261 vehicles bearing 24,629 pounds of hard-to-dispose-of wastes in 3,338 containers.

Pesticides and herbicides made up nearly half of the waste by weight.

The containers were collected at Champaign's public works garage where a professional hazardous waste disposal company, GSX Corp., packed the materials and took them to Tennessee for recycling or incineration.

If the collection had not taken place, the survey said, 1,232 of those containers would have been disposed of in other ways — including being thrown in the garbage, buried or poured into a sewer or on the ground. The rest would have continued to be stored.

The waste came from 262 Champaign-Urbana households and 94 farms from throughout the county, said Liebert.

Although the event was supposed to cost $55,000 and run from 8 a.m. to 5 p.m., the response was so great that another $30,000 had to be rounded up from contingency funds in the early afternoon to keep the doors open. Even then, collections stopped at 1:30 p.m. because there was no more room for the waste being brought in, the survey report said.

Hazardous Products:
Making Your Home Safer

Suggestions for buying, using, storing and disposing of hazardous household products

Produced by the Illinois Hazardous Waste Research and Information Center
1808 Woodfield Dr., Savoy, IL 61874

ENR Illinois Department of Energy and Natural Resources
STATE WATER SURVEY DIVISION

September, 1987

A-31

Handout at Collection Event

HAZARDOUS PRODUCTS IN THE HOME

Many of us use and store potentially hazardous products in our homes. Improper use, storage or disposal of these materials can harm our families, our pets and the environment.

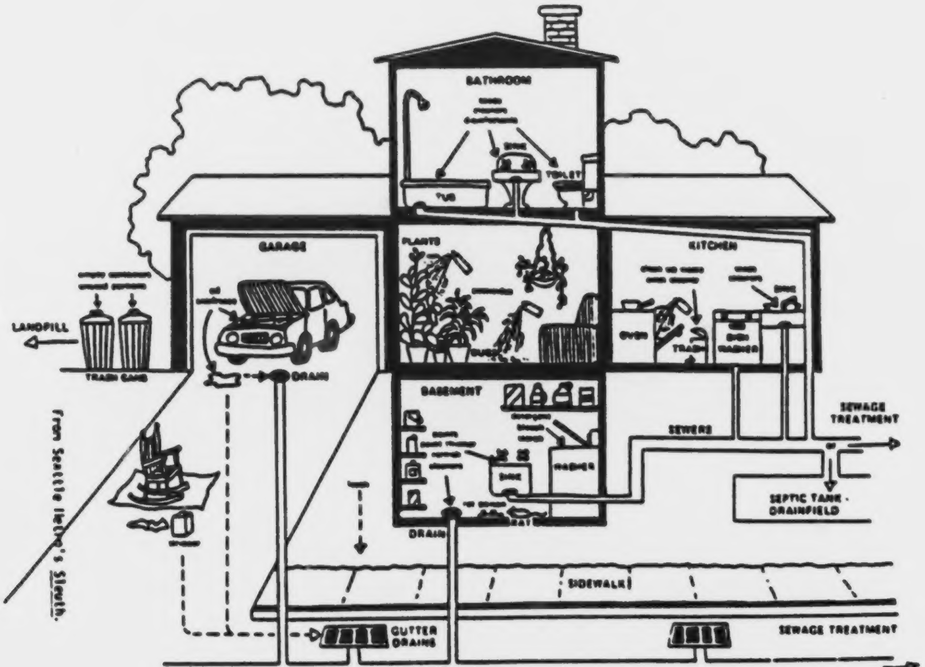
This pamphlet provides suggestions and precautions to keep in mind when buying, using, storing and disposing of hazardous products.

DO YOU HAVE HAZARDOUS PRODUCTS IN YOUR HOME?

The answer is yes if you have any of the following:

- aerosols
- air fresheners and deodorizers
- carpet shampoos
- ceramic tile cleaners
- oven cleaner
- disinfectants
- ceramic tile cleaners
- drain cleaners
- floor wax and strippers
- furniture polish
- mothballs
- oven cleaners
- silver cleaners
- spot removers
- toilet bowl cleaners
- window cleaners
- paint
- paint strippers
- adhesives
- turpentine
- varnishes
- lacquers
- pest and weed killers
- spot removers
- anti-freeze
- gasoline
- motor oil

(There are many other commonly used hazardous products.)


BATHROOM
TUB
SINK
TOILET
GARAGE
LANDFILL
TRASH CANS
DRAIN
PLANTS
BUGS
KITCHEN
OVEN
TRASH
DISH WASHER
SINK
BASEMENT
SINK
WASHER
DRAIN
SEWERS
SEWAGE TREATMENT
SEPTIC TANK · DRAINFIELD
SIDEWALK
GUTTER DRAINS
SEWAGE TREATMENT

from Seattle Metro's Sleuth.

Printed by authority of the State of Illinois 87/100

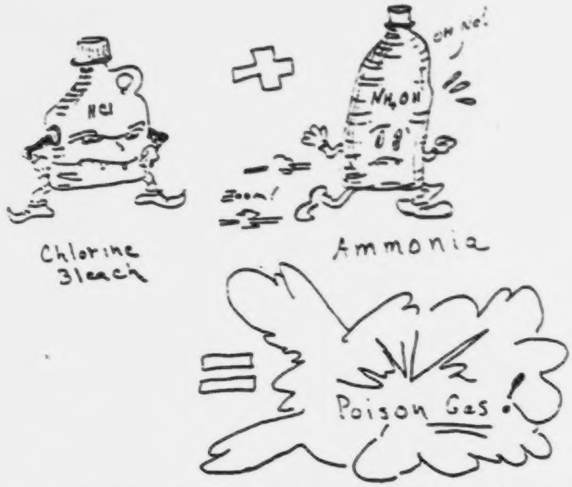
HOW ARE THESE PRODUCTS HARMFUL?

Most hazardous products fall into one of four categories: they are either reactive, corrosive, ignitable or toxic. Some fall into more than one category.

Reactive: Compounds that are unstable and react with water, air or other substances. For example, these substances can cause explosions or create poisonous gases when combined.

REACTIVE

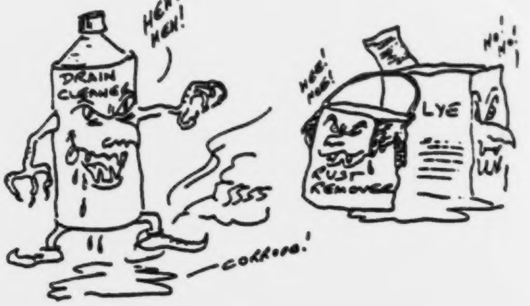
HOUSEHOLD PRODUCTS


HCl
NH₄OH
Oh No!
Zoom!
Chlorine Bleach
Ammonia
Poison Gas!

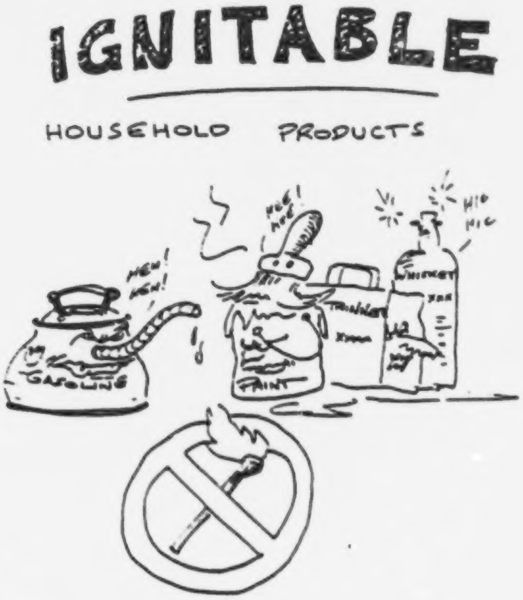
Corrosive: Substances that can eat away by chemical means living tissue or inanimate objects. Corrodes steel at a rate of more than 1/4 in. per year.

CORROSIVE

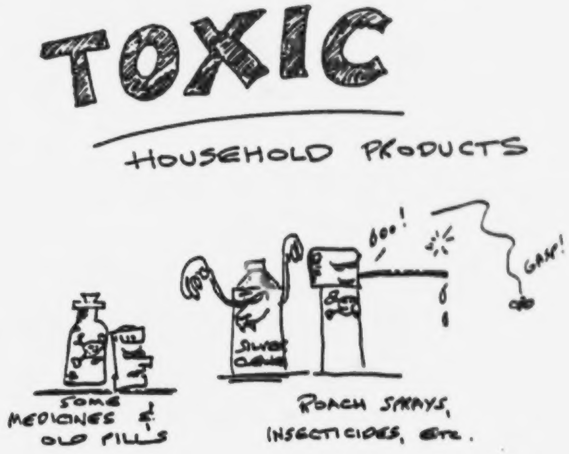
HOUSEHOLD PRODUCTS


Heh! Heh!
Drain Cleaner
SSSS
Corrode!
Hee! Hee!
Rust Remover
LYE
Ho! Ho!

Ignitable: Substances that can pose a fire hazard during routine use. Gasoline, for example.


IGNITABLE
HOUSEHOLD PRODUCTS
HEH! HEH!
HEE HEE
HIC HIC
WHISKEY
THINNER
XXX
GASOLINE
PAINT

Toxic: Substances that can damage living organisms or their offspring. This includes harming plants, humans and other animals.


TOXIC
HOUSEHOLD PRODUCTS
OOO!
GAK!
SILVER CLEANER
SOME MEDICINES & OLD PILLS
ROACH SPRAYS, INSECTICIDES, ETC.

HOW TO MAKE YOUR HOME SAFER & PROTECT THE ENVIRONMENT

1. Use Good Consumer Sense

Think about the job you will be doing.

Buy only the quantity you need to get the job done.

Read labels and buy the least hazardous product that will do the job.

When trying a new product, buy a small quantity; you may not like it, or it may not work.

2. Read the Label Instructions and Follow Them

What use is the product intended for? What is in it? Are there warnings or storage instructions -- "flammable," or "store out of reach of children"? How should you apply it? Should you use protective equipment, such as goggles or rubber gloves? Does the product have an expiration date? It's a good idea to read the label BEFORE you buy the product.

3. Keep Products in their Original Containers

All precautions and instructions should be on the label. If the container is damaged and you must use another, carefully remove the label from the original container and attach it securely to the new one. Never put a poisonous substance in a container in which it could be mistaken for food. Putting paint thinner in a Coke bottle could prove fatal.

4. Do Not Overuse Products

All products have an optimum application level; using more will be counter-productive. For instance, using too much detergent can leave your laundry dingy from residues.

5. Clean Up Thoroughly After Using

Be sure containers are securely closed. Dispose of or clean up equipment and supplies according to the directions on the package. Wipe up any splatters or spills. Store leftovers according to label instructions. Wash up carefully.

6. Use in Well-Ventilated Area

A room with one window open a crack is not well ventilated. When using strong and volatile chemicals, such as solvents, paints and varnishes, open as many windows as possible and use an exhaust fan. If at all possible, use products such as paint stripper outside.

7. **Do Not Mix Chemicals**

Don't mix different kinds of products. **Never mix chlorine bleach and ammonia.** Mixing them will create a poisonous gas that can cause permanent lung damage or even death. Many cleaning products contain one of these two potentially deadly agents.

Use two products together only when specifically instructed on the label.

8. **Avoid Aerosols if Possible**

If a product is hazardous, this method of delivery makes it even more so. It is difficult to control where an aerosol spray goes. The product breaks into tiny particles that are easily inhaled. Consider: oven cleaner can dissolve acrylic sink faucets; what will it do to your lungs? Spray cans may explode when heated or compressed. The container is never empty, even when the propellant is gone. Some propellants are flammable.

9. **If it Makes You Sick, Don't Use it**

Some people are especially sensitive to chemicals. If you get sick or dizzy while using a product, stop using it.

10. **If You are Pregnant, Avoid Chemical Exposure as Much as Possible**

Most chemicals in household products have not been tested for effects on unborn babies. Don't take chances with your baby's health!

11. **Recycle When Possible**

If a product is still usable, give it to someone who can use it. Recycle used motor oil. In Champaign County call the Community Recycling Center (217)351-4495. Trade in used automotive batteries.

12. **Dispose of Products Properly**

Read the label directions carefully. Be sure discarded containers have no hazardous residue in them. Very toxic material, such as pesticides or solvents, should be saved for a household hazardous waste collection. Do not throw aerosol cans in a fire or put them in a trash compactor. Plastics should never be burned.

13. **Keep These Poison Control Numbers Handy**

IN CENTRAL AND SOUTHERN ILLINOIS 1-800-252-2022
IN CHICAGO AREA, ILLINOIS 1-800-942-5969
IN NORTH AND NORTH CENTRAL ILLINOIS 1-800-322-5330

The antidote information on the product label may not be accurate. Remember, you can be poisoned not only by eating or drinking something toxic, but also by breathing or touching certain substances. The Poison Control Center keeps up-to-date information that your physician may not have.

14. **For a free poster detailing the hazards of specific products, disposal options and alternative products call the Illinois Hazardous Waste Research & Information Center (217) 333-8940.**

SUCCESSFUL FARMING THE MAGAZINE OF FARM MANAGEMENT.

Locust at 17th • Des Moines, Iowa 50336 • 515-284-3000

September 13, 1987

Champaign County Farmers,

We're glad you were able to participate in the first collection event ever held in Illinois, and one of only a handful in the whole country that have accepted materials from farms.

We would like to know what you think of this event. Was it a good idea? Should more be held? Do you think leftover chemicals are a problem on farms? Drop us a line with your thoughts on this event.

The safety items you received today were donated by several companies that wanted to lend their support to today's event.

Monsanto Agricultural Co. provided safety goggles to protect your eyes when handling farm chemicals.

Durafab, Inc. sent the polyethylene-coated Tyvek coveralls to wear when handling chemicals.

Snyder Industries furnished the test kits designed to easily detect stress cracks in poly tanks.

Nationwide Glove Mfg. Co. provided the nitrile gloves for handling agricultural chemicals.

Sincerely,

Rich Fee
Crops and Soils Editor

Handout at Collection Event

Magazine Group Meredith CORPORATION

CHEMICAL HAZARDS IN THE GARAGE AND WORKSHOP

Product	Possible Hazards	Disposal Suggestions	Precautions and Substitutes
Aerosols	When sprayed, contents are broken into particles small enough to be inhaled. Cans may explode or burn.	Put only empty cans in trash. Do not burn. Do not place in trash compactor.	Store in cool place. Propellant may be flammable. Instead: use non-aerosol products.
Asphalt roofing compound	Eye irritant. Fumes moderately toxic. *Toxicity 3**	Use up according to label instructions or give away.	No substitutes. Do not use indoors.
Auto: antifreeze	Very poisonous. Has sweet taste — attractive to small children & pets. *Toxicity 3-4**	Amounts of less than 1 gallon pour down sink with plenty of water. Do not do this if you have a septic tank. Put in a secure container & take to a garage or service station.	No substitutes. Clean up any leaks or spills carefully
Auto: batteries	Contain strong acid. Very corrosive. Danger to eyes & skin.	Recycle.	No substitutes. Trade in old batteries.
Auto: degreasers	Corrosive. Poisonous. Eye & skin irritant. *Toxicity 2-4**	Use up according to label instructions.	Choose strong detergent type over solvent type.
Auto: motor oil & transmission fluid	Poisonous. May be contaminated with lead. Skin & eye irritant.	Recycle.	No substitutes.
Auto: waxes & polishes	Fumes irritating to eyes. Harmful if swallowed Eye & skin irritant.	Use up according to label instructions or give away.	Use outside.
Lacquer & lacquer thinner	Extremely flammable. Very poisonous. *Toxicity 4**	Use up according to label instructions or save for hazardous waste collection day.	Ventilate area very well. Do not use in room with pilot light, open flame, electric motors, spark-generating equipment, etc. DO NOT SMOKE WHILE USING.
Paint strippers, thinners, & other solvents	Many are flammable. Eye & skin irritant. Moderately to very poisonous. *Toxicity 3-4**	Let settle, pour off cleaner for re-use. Pour sludge into container & seal, or wrap well in newspaper & throw in trash. Use up according to label instructions or save for hazardous waste collection day.	Avoid aerosols. Buy only as much as you need. Ventilate area well. Do not use near open flame. Instead of paint stripper: sand or use heat gun. Use water clean-up products as much as possible.
Paints, oil-based, & varnishes	Flammable. Eye & skin irritant. Use in small, closed area may cause unconsciousness.	Use up according to label instructions or save for hazardous waste collection day.	Ventilate area well. Do not use near open flame. May take weeks for fumes to go away. Instead: use water-based paints if possible.
Pesticides, herbicides, fungicides, slugbait, rodent poison, wood preservatives**	All are dangerous to some degree. Can cause central nervous system damage, kidney & liver damage, birth defects, internal bleeding, eye injury. Some are readily absorbed through the skin. *Toxicity 3-6**	Use up carefully, following label instructions. Save for hazardous waste collection day.	Do not buy more than you need. Instead: try hand-picking, mechanical cultivation, natural predators. Practice good sanitation. Choose hardy varieties. Use insect lures & traps. As a last resort, use least toxic suitable pesticides.

**Some pesticides have been banned or restricted. These pesticides should be carefully stored and saved for a hazardous waste collection day. A partial list of these products follows:
Aldrin, Amitraz, Arsenic Trioxide, Benomyl, BHC, Bithionol, Chloranil, Chlordane, Chlorobenzilate, Copper Arsenate, DBCP, DDD(TDE), DDT, Diallate, Dieldrin, Dimethoate, EDB, Endrin, EPN, Flouroacetamide, Heptachlor, Kepone, Lindane, Mercury, Mirex, OMPA, Parathion, Polychlorinated Biphenyls, Phenarsazine Chloride, Pronamide, Safrole, Silvex, Sodium Arsenite, Sodium Cyanide, Sodium Flouroacetate, Strobane, Strychnine, Thallium Sulfate, TOK, Toxaphene, Trifluralin, Vinyl Chloride.

Format courtesy of Citizens for a Better Environment

*General Toxicity Rating

	1	2	3	4	5	6
	Almost Non-Toxic	Slightly Toxic	Moderately Toxic	Very Toxic	Extremely Toxic	Super Toxic
Lethal Dose for 150 lb. Adult	More than 1 Quart	1 Pint to 1 Quart	1 Ounce to 1 Pint	1 Teaspoon to 1 Ounce	7 Drops to 1 Teaspoon	Less Than 7 Drops

After Gosselin et al., 1984

For more information:
Hazardous Waste Research and Information Center 1-217-333-8940
Illinois Poison Control Center 1-800-252-2022
Illinois Animal Poison Information Center 1-217-333-3611

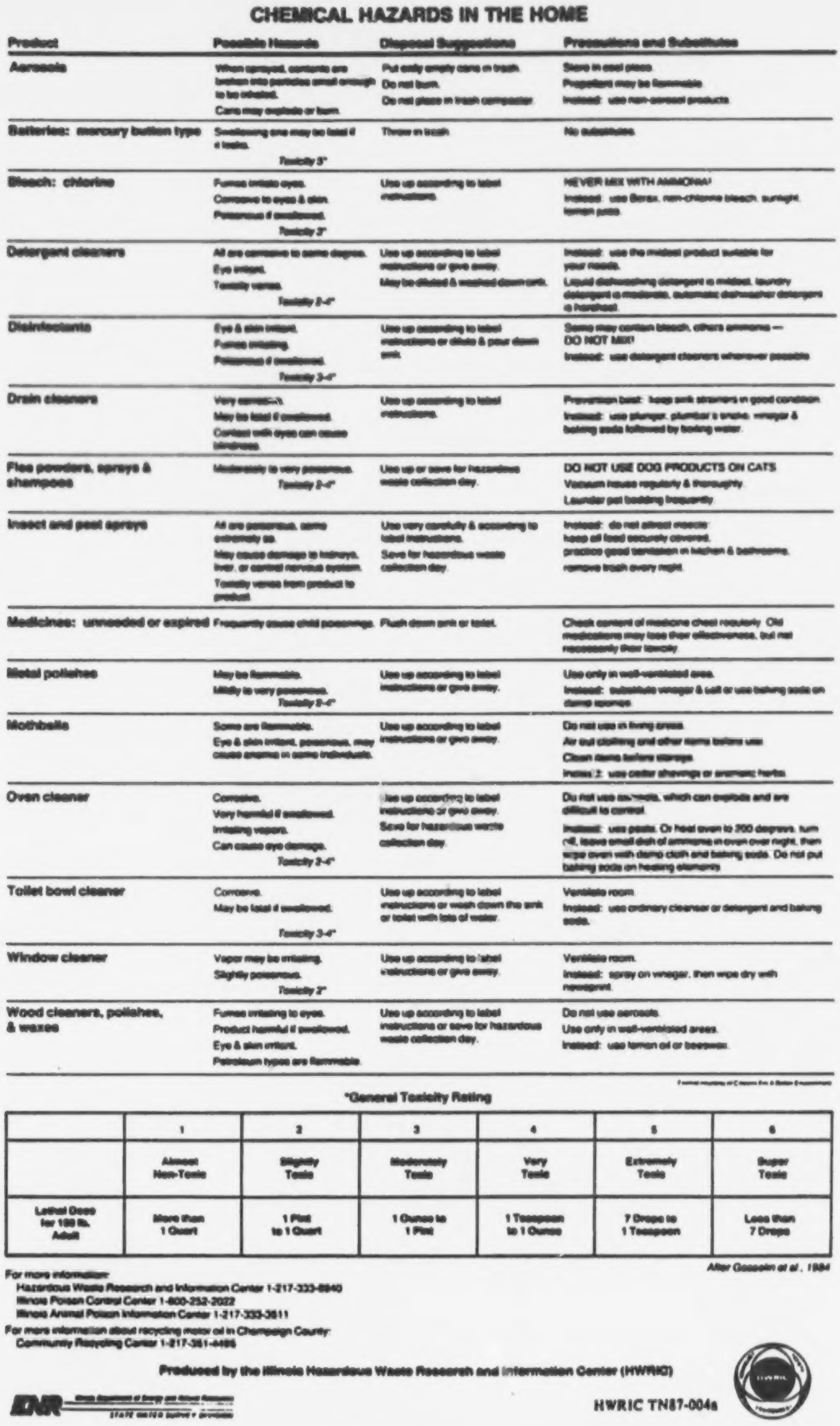
For information about recycling motor oil in Champaign County:
Community Recycling Center 1-217-351-4466

Produced by the Illinois Hazardous Waste Research and Information Center

ENR Illinois Department of Energy and Natural Resources
STATE WATER SURVEY DIVISION

HWRIC TN87-004b

Poster (photoreduced copy)



CHEMICAL HAZARDS IN THE HOME

Product	Possible Hazards	Disposal Suggestions	Precautions and Substitutes
Aerosols	When sprayed, contents are broken into particles small enough to be inhaled. Cans may explode or burn.	Put only empty cans in trash. Do not burn. Do not place in trash compactor.	Store in cool place. Propellant may be flammable. Instead: use non-aerosol products.
Batteries: mercury button type	Swallowing one may be fatal if it leaks. Toxicity 3*	Throw in trash.	No substitutes.
Bleach: chlorine	Fumes irritate eyes. Corrosive to eyes & skin. Poisonous if swallowed. Toxicity 3*	Use up according to label instructions.	NEVER MIX WITH AMMONIA! Instead: use Borax, non-chlorine bleach, sunlight, lemon juice.
Detergent cleaners	All are corrosive to some degree. Eye irritant. Toxicity varies. Toxicity 2-4*	Use up according to label instructions or give away. May be diluted & washed down sink.	Instead: use the mildest product suitable for your needs. Liquid dishwashing detergent is mildest, laundry detergent is moderate, automatic dishwasher detergent is harshest.
Disinfectants	Eye & skin irritant. Fumes irritating. Poisonous if swallowed. Toxicity 3-4*	Use up according to label instructions or dilute & pour down sink.	Some may contain bleach, others ammonia — DO NOT MIX! Instead: use detergent cleaners whenever possible.
Drain cleaners	Very corrosive. May be fatal if swallowed. Contact with eyes can cause blindness.	Use up according to label instructions.	Prevention best: keep sink strainers in good condition. Instead: use plunger, plumber's snake, vinegar & baking soda followed by boiling water.
Flea powders, sprays & shampoos	Moderately to very poisonous. Toxicity 2-4*	Use up or save for hazardous waste collection day.	DO NOT USE DOG PRODUCTS ON CATS Vacuum house regularly & thoroughly. Launder pet bedding frequently.
Insect and pest sprays	All are poisonous, some extremely so. May cause damage to kidneys, liver, or central nervous system. Toxicity varies from product to product.	Use very carefully & according to label instructions. Save for hazardous waste collection day.	Instead: do not attract insects: keep all food securely covered. practice good sanitation in kitchen & bathrooms. remove trash every night.
Medicines: unneeded or expired	Frequently cause child poisonings.	Flush down sink or toilet.	Check content of medicine chest regularly. Old medications may lose their effectiveness, but not necessarily their toxicity.
Metal polishes	May be flammable. Mildly to very poisonous. Toxicity 2-4*	Use up according to label instructions or give away.	Use only in well-ventilated area. Instead: substitute vinegar & salt or use baking soda on damp sponge.
Mothballs	Some are flammable. Eye & skin irritant, poisonous, may cause anemia in some individuals.	Use up according to label instructions or give away.	Do not use in living areas. Air out clothing and other items before use. Clean items before storage. Instead: use cedar shavings or aromatic herbs.
Oven cleaner	Corrosive. Very harmful if swallowed. Irritating vapors. Can cause eye damage. Toxicity 2-4*	Use up according to label instructions or give away. Save for hazardous waste collection day.	Do not use aerosols, which can explode and are difficult to control. Instead: use paste. Or heat oven to 200 degrees, turn off, leave small dish of ammonia in oven over night, then wipe oven with damp cloth and baking soda. Do not put baking soda on heating elements.
Toilet bowl cleaner	Corrosive. May be fatal if swallowed. Toxicity 3-4*	Use up according to label instructions or wash down the sink or toilet with lots of water.	Ventilate room. Instead: use ordinary cleanser or detergent and baking soda.
Window cleaner	Vapor may be irritating. Slightly poisonous. Toxicity 2*	Use up according to label instructions or give away.	Ventilate room. Instead: spray on vinegar, then wipe dry with newsprint.
Wood cleaners, polishes, & waxes	Fumes irritating to eyes. Product harmful if swallowed. Eye & skin irritant. Petroleum types are flammable.	Use up according to label instructions or save for hazardous waste collection day.	Do not use aerosols. Use only in well-ventilated areas. Instead: use lemon oil or beeswax.

Format courtesy of Citizens For A Better Environment

*General Toxicity Rating

	1	2	3	4	5	6
	Almost Non-Toxic	Slightly Toxic	Moderately Toxic	Very Toxic	Extremely Toxic	Super Toxic
Lethal Dose for 150 lb. Adult	More than 1 Quart	1 Pint to 1 Quart	1 Ounce to 1 Pint	1 Teaspoon to 1 Ounce	7 Drops to 1 Teaspoon	Less than 7 Drops

After Gosselin et al., 1984

For more information:
Hazardous Waste Research and Information Center 1-217-333-8940
Illinois Poison Control Center 1-800-252-2022
Illinois Animal Poison Information Center 1-217-333-3611

For more information about recycling motor oil in Champaign County:
Community Recycling Center 1-217-351-4486

Produced by the Illinois Hazardous Waste Research and Information Center (HWRIC)

ENR Illinois Department of Energy and Natural Resources
STATE WATER SURVEY DIVISION

HWRIC TN87-004a

A-45 Poster (photoreduced copy)

APPENDIX B

JULY AND OCTOBER 1987 SURVEY QUESTIONNAIRES

6/87

University of Illinois
Survey Research Laboratory

Champaign/Urbana/Decatur
Hazardous Household Waste Survey

Quest. ID# ______________ 1-5

Study 623 7-10

Stratum ______________ 11

Interviewer ID# __________ 12-14

Time interview begins: ____________ *(Use 24-hour clock)* 15-18

Hello, is this *(phone #)*? My name is _________ and I'm calling from the Survey Research Laboratory at the University of Illinois. May I speak to the male or female head of the household? We're doing a study of how people who live in (Champaign County, DECATUR) feel about some community issues and I'd like to ask you some questions.

1. First of all, do you live in . . .

Champaign, ... 1

Urbana, or 2

Someplace else in Champaign County? *(Specify)* ___________ 3

____

No *(End interview)* 4

DECATUR, OR 5 19

SOMEPLACE ELSE? *(END INTERVIEW)* 6

2a. How long have you lived in this community?

Less than 2 months 00 20-21

2 to 12 months *(Skip to Q.3)* . . . 01

_________ years *(Skip to Q.3)*

Don't know (Skip to Q.3) *98*

b. Do you expect to be living in this community this coming Fall?

Yes 1 22

No *(End interview)* 2

Don't know *8*

3. In your community, do you feel that government is spending too much money, about the right amount, or too little money on . . .

	Too much money,	About the right amount, or	Too little money?	*Don't know*	
a. Protecting the local environment? . .	1	2	3	*8*	23
b. The public education system?	1	2	3	*8*	24
c. Landfill operation and maintenance? .	1	2	3	*8*	25
d. Local economic development?	1	2	3	*8*	26
e. Drug and alcohol problems?	1	2	3	*8*	27
f. The disposal of hazardous household waste?	1	2	3	*8*	28

4a. Prior to this call, had you heard anything at all about hazardous household waste?

Yes	1	
No *(Skip to Q.5)*	2	29
Don't know (Skip to Q.5)	*8*	

b. How did you hear about it? *(Circle all that apply. Don't read list.)*

Brochure	01	30-31	Library	11	50-51
Poster	02	32-33	Newspaper	12	52-53
Flyer	03	34-35	Radio	13	54-55
Neighbor or friend	04	36-37	Television	14	56-57
Family member	05	38-39	Magazine	15	58-59
Work, fellow workers	06	40-41	Display at the mall	16	60-61
Local club or organization .	07	42-43	County fair	17	62-63
Church	08	44-45	Other *(Specify)* ________________	18	64-65
Farm Bureau	09	46-47	________________________________		
School	10	48-49	*Don't know*	*98*	66-67

68-79/BK
80/1

5. What sorts of products or materials do you think of when you hear the term hazardous household waste? *(Circle all that apply. Probe for additional items, but do not read list.)* 1-6/DUP

a. Lawn and garden products *(Probe:* What types do you have in mind?)	01	7-8
Weed killers or herbicides	02	9-10
Insect killers, pesticides, or poisons	03	11-12
Fertilizers	04	13-14
b. Household cleaners (*Probe:* What types do you have in mind?)	05	15-16
Oven cleaners	06	17-18
Drain openers	07	19-20
Toilet bowl cleaners	08	21-22
General purpose cleaners, polishes, or disinfectants	09	23-24
Bleach, ammonia	10	25-26
c. Home maintenance products (*Probe:* What types do you have in mind?)	11	27-28
Paints (*Probe:* Is it oil-based or latex?)	12	29-30
Oil-based paints, varnishes, lacquers, or wood preservatives	13	31-32
Paint thinners, strippers, or solvents	14	33-34
Glues and adhesives	15	35-36
Charcoal lighter fluid or propane	16	37-38
d. Automotive products (*Probe:* What types do you have in mind?)	17	39-40
Car motor oil	18	41-42
Gasoline or kerosene	19	43-44
Car anti-freeze	20	45-46
Car, truck, or boat batteries	22	47-48
Other *(Specify)* ________________________________	25	49-50
Don't know	*98*	51-52

6. Now I am going to read you a list of materials that some people think are hazardous. For each type, please tell me how hazardous you think they are. What about . . .

	Not hazardous,	Somewhat hazardous, or	Very hazardous?	*Depends*	*DK*	
a. Weed killers or herbicides? Would you say they are	1	2	3	*7*	*8*	53
b. Insect killers, pesticides, or poisons? Would you say they are	1	2	3	*7*	*8*	54
c. Oven cleaners?	1	2	3	*7*	*8*	55
d. Drain openers?	1	2	3	*7*	*8*	56
e. Toilet bowl cleaners?	1	2	3	*7*	*8*	57
f. Varnishes, wood preservatives, or oil based paints?	1	2	3	*7*	*8*	58
g. Paint thinners, strippers, or solvents?	1	2	3	*7*	*8*	59
h. Charcoal lighter fluid or propane gas?	1	2	3	*7*	*8*	60
i. Car motor oil?	1	2	3	*7*	*8*	61
j. Gasoline or kerosene?	1	2	3	*7*	*8*	62
k. Car anti-freeze?	1	2	3	*7*	*8*	63
l. Car, truck, or boat batteries?	1	2	3	*7*	*8*	64

7. In the past 12 months, have you had any *(item)* at or around your home, garage, or shed?

(If yes to Q.7:)
8a. About how many containers of *(item)* do you currently have?

(If more than 0 on Q.8a:)
8b. Is any of it unwanted that you would like to get rid of?

	YES	No	*DK*		Yes	No	*DK*	
a. Weed killers or herbicides	1	2	*8*	______ containers *DK* *98*	1	2	*8*	65-68
b. Insect killers, pesticides, or poisons	1	2	*8*	______ containers *DK* *98*	1	2	*8*	69-72
c. Oven cleaners . . .	1	2	*8*	______ containers *DK* *98*	1	2	*8*	73-76 77-79/BK 80/2 1-6/DUP
d. Drain openers . . .	1	2	*8*	______ containers *DK* *98*	1	2	*8*	7-10
e. Toilet bowl cleaners	1	2	*8*	______ containers *DK* *98*	1	2	*8*	11-14
f. Varnishes, wood preservatives, or oil-based paint .	1	2	*8*	______ containers *DK* *98*	1	2	*8*	15-18
→ g. Paint thinners, strippers, or solvents	1	2	*8*	______ containers *DK* *98*	1	2	*8*	19-22
h. Charcoal lighter fluid or propane gas	1	2	*8*	______ containers *DK* *98*	1	2	*8*	23-26
i. Car motor oil . . .	1	2	*8*	______ containers *DK* *98*	1	2	*8*	27-30
j. Gasoline or kerosene	1	2	*8*	______ containers *DK* *98*	1	2	*8*	31-34
k. Car anti-freeze .	1	2	*8*	______ containers *DK* *98*	1	2	*8*	35-38
l. Extra car, truck, or boat batteries	1	2	*8*	______ batteries *DK* *98*	1	2	*8*	39-42

(If Yes to Q.7:)

9a. Have you disposed of any partial or full containers of *(item)* in the past 12 months?

(If yes to Q.9a:)

9b. How do you normally dispose of *(item)*?

Recycle 1
Take to disposal collection site . 2
Dump on ground . 3
Pour down drain, sewer 4
Garbage/landfill. 5
Other 6
Don't know . . . *8*

(If yes to Q.9a:)

9c. Approximately how many containers of *(item)* did you dispose of in the last 12 months?

	Yes	No	*DK*			
a. Weed killers or herbicides	1	2	*8*	Code: ________	________ containers *DK* *98*	43-46
b. Insect killers, pesticides, or poisons	1	2	*8*	Code: ________	________ containers *DK* *98*	47-50
c. Oven cleaners . .	1	2	*8*	Code: ________	________ containers *DK* *98*	51-54
d. Drain openers . .	1	2	*8*	Code: ________	________ containers *DK* *98*	55-58
e. Toilet bowl cleaners	1	2	*8*	Code: ________	________ containers *DK* *98*	59-62
f. Varnishes, wood preservatives, or oil-based paint .	1	2	*8*	Code: ________	________ containers *DK* *98*	63-66
g. Paint thinners, strippers, or solvents	1	2	*8*	Code: ________	________ containers *DK* *98*	67-70
h. Charcoal lighter fluid or propane gas	1	2	*8*	Code: ________	________ containers *DK* *98*	71-74
i. Car motor oil . .	1	2	*8*	Code: ________	________ containers *DK* *98*	75-78 79/BK 80/3 1-
j. Gasoline or kerosene	1	2	*8*	Code: ________	________ containers *DK* *98*	7-10
k. Car anti-freeze .	1	2	*8*	Code: ________	________ containers *DK* *98*	11-14
l. Extra car, truck, or boat batteries	1	2	*8*	Code: ________	________ batteries *DK* *98*	15-18

10a. Compared to a year ago, has the way you dispose of hazardous household products . . .

changed, or 1 19

remained the same? *(Skip to Q.11a)* 2

b. How has it changed? *(Circle all that apply.)*

Now recycles more, ... 1 20

Now gives to collection center more, ... 2 21

Now keeps it more, stores it . . . 3 22

Now uses it up 4 23

Now follows proper disposal instructions 5 24

Other *(Specify)* ________________ 6 25

____

11a. Have there been any accidents involving injuries in your household because of hazardous materials?

Yes 1 26

No *(Skip to Q.12)* 2

Don't know (Skip to Q.12) 8

b. Have any of these injuries been serious enough to require medical attention?

Yes 1

No 2 27

Don't know 8

12. When buying hazardous products, do you generally try to find those with warning labels explaining how to use or dispose of them?

Yes 1

No 2 28

Depends 3

Don't know 8

13. Do you generally try to buy less harmful substitutes for hazardous products?

Yes 1
No 2 29
Depends 3
Don't know *8*

14. When new products come on the market, are you usually among the first to try them or do you wait to see what others think?

Usually among the first to try them 1
Wait to see what others think . . 2 30
Depends 3
Don't know *8*

15. For each of the following statements, please tell me whether you strongly agree, agree, disagree, or strongly disagree.

	Strongly agree,	Agree,	Disagree, or	Strongly disagree?	*DK*	
a. Manufacturers should be required to provide clear warning labels about how to use and dispose of hazardous products. Do you	1	2	3	4	*8*	31
b. People should store leftover hazardous products if they can use them up later. Do you . . .	1	2	3	4	*8*	32
c. There should be a law against disposal of hazardous household waste in sewers or on the ground	1	2	3	4	*8*	33
d. Government should promote the use of nonhazardous alternatives	1	2	3	4	*8*	34
e. The community should allow all hazardous household waste to be picked up in the garbage and hauled to the landfill	1	2	3	4	*8*	35

16a. Throughout the United States, state and local governments are funding several types of special collection programs for hazardous household waste. Which would you prefer . . .

a collection site for people to drop off their hazardous household waste, or 1

curbside pickup? *(Skip to Q.16c)* 2 36

Neither *(Skip to Q.16d)* 3

Don't know (Skip to Q.16d) *8*

b. Would you prefer that the collection site be open . . .

one or two days each year, or *(Skip to Q.16d)* 1

at least one day each month? *(Skip to Q.16d)* 2 37

Don't know (Skip to Q.16d) *8*

c. Would you prefer that curbside pickup be done . . .

one or two days each year, or 1

at least one day each month? 2 38

Don't know *8*

d. It costs between $5 and $30 per household each year to dispose of hazardous household wastes properly. To pay for a special collection program in your community, should funding come primarily from . . . *(Circle one only.)*

a sales tax on hazardous products, ... 01 39-40

general state tax revenue, ... 02

general local tax revenue, or 03

fees collected from garbage trucks at landfills? 04

Other *(Specify)* ______________________________

______________________________________ *05*

Don't know *98*

17a. If your community set up an annual collection site for people to drop off hazardous household waste, do you think your household would participate?

Yes 1

No *(Skip to Q.18a)* 2 41

Don't know (Skip to Q.18a) . . . *8*

b. How many miles would you travel to go to the collection site?

______________ miles 42-43

Does not drive *96*

Don't know *98*

c. *(Farmers only:)* Do you have any hazardous agricultural waste that you would bring to a collection site if one were provided?

Yes 1

No 2 44

Don't know *8*

18a. Have you heard anything about a special day in your community for the collection of hazardous household waste?

Yes 1 45

No *(Skip to Q.19)* 2

b. How did you hear about it? *(Circle all that apply. Don't read list.)*

Brochure	01	46-47	Library	11	66-67
Poster	02	48-49	Newspaper	12	68-69
Flyer	03	50-51	Radio	13	70-71
Neighbor or friend	04	52-53	Television	14	72-73
Family member	05	54-55	Magazine	15	74-75
Work, fellow workers	06	56-57	Display at the mall	16	76-77
Local club or organization .	07	58-59	County fair	17	78-79 80/4 1-6
Church	08	60-61	Other *(Specify)* ______________	18	
Farm Bureau	09	62-63	______________________________		7-8
School	10	64-65	*Don't know*	*98*	9-10

19. What is your main source of news and information about local community affairs? *(Circle one)*

Newspaper	01	11-12
Radio	02	
Television	03	
Neighbor or friend	04	
Family member	05	
School	06	
Other *(Specify)* ______________	07	
______________________		
None	*97*	
Don't know	*98*	

20. What one television station do you most often watch for local news? *(Circle one)*

Channel 3 (WCIA-CBS)	1	
Channel 12 (WILL-PBS)	2	
Channel 15 (WICD-NBC)	3	
Channel 17 (WAND-ABC)	4	13
Other	5	
None	*7*	
Don't know	*8*	

21. Which one local radio station do you listen to most often? *(Circle one)*

FM		AM		
WBGL (91.7)	01	WDWS-AM (1400)	12	
WBML (89.3)	02	WILL-AM (580)	13	
WDWS-FM (97.5)	03	WJTX (1580)	14	14-15
WEFT (90.1)	04	WRTL-AM (1460)	15	
WILL-FM (90.9)	05	WSOY-AM (1340)	16	
WKIO (K-104) (104 or 103.9)	06	Other *(Specify)* ____________	17	
WLRW (94.5)	07	______________________		
WPGU (107.1)	08	*None*	*97*	
WRTL-FM (95.3)	09	*Don't know*	*98*	
WSOY (X-103) (103 or 102.9)	10			
WVJL (105.1)	11			

22. What newspapers do you read that carry local news? *(Circle all that apply.)*

Daily Illini	1	16
News-Gazette	2	17
Decatur Herald Review	3	18
Rantoul Press	4	19
Other *(Specify)* ____________ ____________________	5	20
None	*7*	21
Don't know	*8*	22

23. Do you pay special attention to information about . . .

	Yes	No	DK	
a. The kinds of household products that are hazardous? . .	1	2	*8*	23
b. how to use and store hazardous products safely?	1	2	*8*	24
c. the dangers associated with hazardous products?	1	2	*8*	25
d. how to dispose of hazardous products safely?	1	2	*8*	26
e. nonhazardous alternatives for household use?	1	2	*8*	27

24. Now I have just a few final questions about you and your household. Do you . . .

recycle all of your household cans, bottles, and newspapers, ...	1	28
recycle most of them, ...	2	
recycle some of them, or	3	
never recycle them?	4	
Don't know	*8*	

25. Does your neighborhood have a weekly curbside recycling program for cans, bottles, and newspapers?

Yes	1	29
No	2	
Don't know	*8*	

CHAMPAIGN AND URBANA RESIDENTS CONTINUE TO Q.26
ALL OTHER RESIDENTS SKIP TO Q.28

26. Do you live north or south of University Avenue?

North 1

South 2 30

Don't know (Skip to Q.28) . . . *8*

(Urbana Residents skip to Q.27b)

(Champaign Residents only:)
27a. Do you live east or west of Prospect Avenue?

East *(Skip to Q.28)* 1

West *(Skip to Q.28)* 2 31

Don't know (Skip to Q.28) . . . *8*

(Urbana Residents only:)
27b. Do you live east or west of Vine Street or Cunningham Avenue?

East 1

West 2 32

Don't know *8*

28. Do you live in . . .

a single family house, ... 1

a duplex or two flat, ... 2

an apartment building or townhouse, ... 3 33

a trailer or mobile home, or 4

something else? *(Specify)* ________________ 5

____

29. Do you own or rent your home?

Own 1

Rent 2 34

Other *(Specify)* ________________ 3

____

30a. Including yourself, how many people currently live in your household?

_______________ 35-36
(If "1," skip to Q.31)

b. How many are adults 65 years of age and older? _______________ 37-38

c. How many are children 5-17 years of age? _______________ 39-40

31. What is the highest grade or year of school you have completed?

None 00 41-42
Elementary . . 01 02 03 04 05 06 07 08
High school 09 10 11 12
College 13 14 15 16
Some graduate school 17
Graduate or professional degree 18

32. In what year were you born?

19 _______________ 43-44

33. Did you normally vote in local elections?

Yes 1 45
No 2
Don't know *8*

34a. Are you currently . . .

Employed full-time, *(Skip to Q.35)* 1 46
Part-time, or *(Skip to Q.35)* 2
Not employed at all? 3

34b. Are you . . .

Retired, ... 1
Disabled, ... 2
Temporarily unemployed, ... 3
A student *(Skip to Q.36)* 4 47
Keeping house, or *(Skip to Q.36)* 5
Not employed and not looking for paid employment? *(Skip to Q.36)* 6
Other *(Specify)* _______________ 7

(If "retired," "disabled," or "temporarily out of work," ask about last occupation.)

35. What (is/was) your occupation?

Managerial and Professional (accountants, buyers, engineers, teachers, nurses, lawyers, artist, minister, etc.) 1 48

Technical, Sales, Administrative Support (computer programmers, insurance agents, sales clerks, typists, telephone operators, mail clerks, bookkeepers) 2

Service Occupations (cooks, barbers, police, dental assistants, maids) 3

Farming, Forestry, and Fishing (farm operators, gardeners, farm managers) 4

Precision Production, Craft, and Repair (mechanics, carpenters, painters, plumbers, miners, tailors, butchers, machine operators, welders, truck drivers, laborers) 5

Other *(Specify)* ______________________________ 6

____

Don't know *8*

36. During 1986, was your total household income before taxes . . .

Less than $15,000 or L

More than $15,000 *(Skip to Q.38)* . . . . M 49-50

$15,000 exactly (Skip to Q.41) 15

Don't know (Skip to Q.41) 98

Refused (Skip to Q.41) 99

37. Was it . . .

Less than $10,000? No *(Skip to Q.41)* . . . 12

Less than $8,000? No *(Skip to Q.41)* . . . 09

Less than $6,000? No *(Skip to Q.41)* . . . 07

Less than $4,000? No *(Skip to Q.41)* . . . 05

Yes *(Skip to Q.41)* . . . 03

Don't know (Skip to Q.41) 98

Refused (Skip to Q.41) 99

38. Was it . . .

Less than $30,000 or L

More than $30,000? *(Skip to Q.40)* . . . . . M

$30,000 exactly (Skip to Q.41) 30

Don't know (Skip to Q.41) 92

Refused (Skip to Q.41) 93

39. Was it . . .

Less than $25,000? No *(Skip to Q.41)* . . . 27

Less than $20,000? No *(Skip to Q.41)* . . . 22

Yes *(Skip to Q.41)* . . . 17

Don't know (Skip to Q.41) 94

Refused (Skip to Q.41) 95

40. Was it . . .

More than $40,000? No 35

More than $50,000? No 45

More than $60,000? No 55

More than $70,000? No 65

Yes 80

Don't know 96

Refused 97

41. *Interviewer: Circle--but do not ask--sex of respondent.*

Male 1 51

Female 2

THANK YOU FOR YOUR COOPERATION.

Time interview ends: ________:________ 51-54

Township # ______________ 55-56

80/5

10/87

University of Illinois
Survey Research Laboratory

Champaign/Urbana/Decatur
Hazardous Household Waste Survey

Quest. ID#	____________
Study	631
Stratum	____________
Interviewer ID#	____________

TIME INTERVIEW BEGINS: ____________ (USE 24-HOUR CLOCK)

Hello, is this (PHONE #)? My name is _________ and I'm calling from the Survey Research Laboratory at the University of Illinois. May I speak to the male or female head of the household? We're doing a study of how people who live in (Champaign County, DECATUR) feel about some community issues and I'd like to ask you some questions.

1. First of all, do you live in . . .

Champaign,	1
Urbana, or	2
Someplace else in Champaign County? (SPECIFY) ____________ ____________	3
No (END INTERVIEW)	4
DECATUR, OR	5
SOMEPLACE ELSE? (END INTERVIEW)	6

2. How long have you lived in this community?

Less than 2 months	00
2 to 12 months	01
_________ years	02
DON'T KNOW	98

3. In your community, do you feel that government is spending too much money, about the right amount, or too little money on . . .

	Too much money,	About the right amount, or	Too little money?	DON'T KNOW
a. Protecting the local environment?	1	2	3	8
b. The public education system?	1	2	3	8
c. Landfill operation and maintenance?	1	2	3	8
d. Local economic development?	1	2	3	8
e. Drug and alcohol problems?	1	2	3	8
f. The disposal of hazardous household waste?	1	2	3	8

4a. Prior to this call, had you heard anything at all about hazardous household waste?

Yes	1
No (SKIP TO Q.5)	2
DON'T KNOW (SKIP TO Q.5)	8

b. Where did you hear about it? (CIRCLE ALL THAT APPLY. DON'T READ LIST.)

Brochure	01	Library	11
Poster	02	Newspaper	12
Flyer	03	Radio	13
Neighbor or friend	04	Television	14
Family member	05	Magazine	15
Work, fellow workers	06	Display at the mall	16
Local club or organization	07	County fair	17
Church	08	Other (SPECIFY) ________________	18
Farm Bureau	09	________________________________	
School	10	DON'T KNOW	98

5. What sorts of products or materials do you think of when you hear the term hazardous household waste? (CIRCLE ALL THAT APPLY. PROBE FOR ADDITIONAL ITEMS, BUT DO NOT READ LIST.)

a. Lawn and garden products (PROBE: What types do you have in mind?) 01

Weed killers or herbicides 02

Insect killers, pesticides, or poisons 03

Fertilizers 04

b. Household cleaners (PROBE: What types do you have in mind?) . . 05

Oven cleaners 06

Drain openers 07

Toilet bowl cleaners 08

General purpose cleaners, polishes, or disinfectants 09

Bleach, ammonia 10

c. Home maintenance products (PROBE: What types do you have in mind?) 11

Paints (PROBE: Is it oil-based or latex?) 12

Oil-based paints, varnishes, lacquers, or wood preservatives . . 13

Paint thinners, strippers, or solvents 14

Glues and adhesives 15

Charcoal lighter fluid or propane 16

d. Automotive products (PROBE: What types do you have in mind?) . 17

Car motor oil 18

Gasoline or kerosene 19

Car anti-freeze 20

Car, truck, or boat batteries 22

Other (SPECIFY) ____

____ 25

____

____

DON'T KNOW 98

6. Now I am going to read you a list of materials that some people think are hazardous. For each type, please tell me how hazardous you think they are. What about . . .

	Not hazardous,	Somewhat hazardous, or	Very hazardous?	DEPENDS	DK
a. Weed killers or herbicides? Would you say they are	1	2	3	7	8
b. Insect killers, pesticides, or poisons? Would you say they are	1	2	3	7	8
c. Oven cleaners?	1	2	3	7	8
d. Drain openers?	1	2	3	7	8
e. Toilet bowl cleaners?	1	2	3	7	8
f. Varnishes, wood preservatives, or oil based paints?	1	2	3	7	8
g. Paint thinners, strippers, or solvents?	1	2	3	7	8
h. Charcoal lighter fluid or propane gas?	1	2	3	7	8
i. Car motor oil?	1	2	3	7	8
j. Gasoline or kerosene?	1	2	3	7	8
k. Car anti-freeze?	1	2	3	7	8
l. Car, truck, or boat batteries?	1	2	3	7	8

7. In the past 12 months, have you had any containers (ITEM) at or around your home, garage, or shed?				(IF YES TO Q.7:) 8a. About how many containers of (ITEM) do you currently have?	(IF MORE THAN 0 ON Q.8a:) 8b. Is any of it unwanted that you would like to get rid of?		
	YES	No	DK		Yes	No	DK
a. Weed killers or herbicides	1	2	8	______ containers DK 98	1	2	8
b. Insect killers, pesticides, or poisons	1	2	8	______ containers DK 98	1	2	8
c. Oven cleaners . .	1	2	8	______ containers DK 98	1	2	8
d. Drain openers . .	1	2	8	______ containers DK 98	1	2	8
e. Toilet bowl cleaners	1	2	8	______ containers DK 98	1	2	8
f. Varnishes, wood preservatives, or oil-based paint .	1	2	8	______ containers DK 98	1	2	8
g. Paint thinners, strippers, or solvents	1	2	8	______ containers DK 98	1	2	8
h. Charcoal lighter fluid or propane gas	1	2	8	______ containers DK 98	1	2	8
i. Car motor oil . .	1	2	8	______ containers DK 98	1	2	8
j. Gasoline or kerosene	1	2	8	______ containers DK 98	1	2	8
k. Car anti-freeze .	1	2	8	______ containers DK 98	1	2	8
l. Extra car, truck, or boat batteries	1	2	8	______ batteries DK 98	1	2	8

(IF YES TO Q.7:)
9a. Have you disposed of any partial or full containers of (ITEM) in the past 12 months? (PROBE: Were they partial or full? or empty?

(IF YES TO Q.9a:)
9b. Approximately how many partial or full containers of (ITEM) did you dispose of in the last 12 months?

(IF YES TO Q.9a:)
9c. How do you normally dispose of (ITEM)?

Recycle 1
Take to disposal collection site . 2
Dump on ground . 3
Pour down drain, sewer 4
Garbage/landfill. 5
Other 6
DON'T KNOW . . . 8

	Yes	No	DK		
a. Weed killers or herbicides	1	2	8	_____ containers DK 98	Code: _____
b. Insect killers, pesticides, or poisons	1	2	8	_____ containers DK 98	Code: _____
c. Oven cleaners . .	1	2	8	_____ containers DK 98	Code: _____
d. Drain openers . .	1	2	8	_____ containers DK 98	Code: _____
e. Toilet bowl cleaners	1	2	8	_____ containers DK 98	Code: _____
f. Varnishes, wood preservatives, or oil-based paint .	1	2	8	_____ containers DK 98	Code: _____
g. Paint thinners, strippers, or solvents	1	2	8	_____ containers DK 98	Code: _____
h. Charcoal lighter fluid or propane gas	1	2	8	_____ containers DK 98	Code: _____
i. Car motor oil . .	1	2	8	_____ containers DK 98	Code: _____
j. Gasoline or kerosene	1	2	8	_____ containers DK 98	Code: _____
k. Car anti-freeze .	1	2	8	_____ containers DK 98	Code: _____
l. Extra car, truck, or boat batteries	1	2	8	_____ batteries DK 98	Code: _____

10a. Compared to a year ago, has the way you dispose of hazardous household products . . .

changed, or 1

remained the same? (SKIP TO Q.11a) 2

b. How has it changed? (CIRCLE ALL THAT APPLY.)

Now recycles more, ... 1

Now gives to collection center more, ... 2

Now keeps it more, stores it . . . 3

Now uses it up 4

Now follows proper disposal instructions 5

Other (SPECIFY) ________________ 6

____

11a. Have there ever been any accidents involving injuries in your household because of hazardous materials?

Yes 1

No (SKIP TO Q.12) 2

DON'T KNOW (SKIP TO Q.12) 8

b. Have any of these injuries been serious enough to require medical attention?

Yes 1

No 2

DON'T KNOW 8

12. When buying hazardous products, do you generally try to find those with warning labels explaining how to use or dispose of them?

Yes 1

No 2

DEPENDS 3

DON'T KNOW 8

13. Do you generally try to buy less harmful substitutes for hazardous products?

Yes	1
No	2
DEPENDS	3
DON'T KNOW	8

14. When new products come on the market, are you usually among the first to try them or do you wait to see what others think?

Usually among the first to try them	1
Wait to see what others think	2
DEPENDS	3
DON'T TRY NEW PRODUCTS	4
DON'T KNOW	8

15. For each of the following statements, please tell me whether you strongly agree, agree, disagree, or strongly disagree.

	Strongly agree,	Agree,	Disagree, or	Strongly disagree?	DK
a. Manufacturers should be required to provide clear warning labels about how to use and dispose of hazardous products. Do you	1	2	3	4	8
b. People should store leftover hazardous products if they can use them up later. Do you	1	2	3	4	8
c. There should be a law against disposal of hazardous household waste in sewers or on the ground	1	2	3	4	8
d. Government should promote the use of nonhazardous alternatives	1	2	3	4	8
e. The community should allow all hazardous household waste to be picked up in the garbage and hauled to the landfill	1	2	3	4	8

16a. Throughout the United States, state and local governments are funding several types of special collection programs for hazardous household waste. Which would you prefer . . .

a collection site for people to drop off their hazardous household waste, or 1

curbside pickup? (SKIP TO Q.16c) 2

Neither (SKIP TO Q.16d) 3

DON'T KNOW (SKIP TO Q.16d) 8

b. Would you prefer that the collection site be open . . .

one or two days each year, or (SKIP TO Q.16d) 1

at least one day each month? (SKIP TO Q.16d) 2

DON'T KNOW (SKIP TO Q.16d) 8

c. Would you prefer that curbside pickup be done . . .

one or two days each year, or 1

at least one day each month? 2

DON'T KNOW 8

d. It costs between $5 and $30 per household each year to dispose of hazardous household wastes properly. To pay for a special collection program in your community, do you think that funding should come primarily from . . . (CIRCLE ONE ONLY.)

a sales tax on hazardous products, ... 1

general state tax revenue, ... 2

general local tax revenue, or. 3

fees collected from garbage trucks at landfills? 4

Other (SPECIFY) ______________________________

____ 5

DON'T KNOW 8

17a. Did you hear anything about a special day in September for the collection of hazardous household waste?

Yes	1
No (SKIP TO Q.19)	2

b. How did you hear about it? (CIRCLE ALL THAT APPLY. DON'T READ LIST.)

Brochure	01
Poster	02
Flyer	03
Neighbor or friend	04
Family member	05
Work, fellow workers	06
Local club or organization	07
Church	08
Farm Bureau	09
School	10
Library	11
Newspaper	12
Radio	13
Television	14
Magazine	15
Display at the mall	16
County fair	17
Other (SPECIFY) ______________ ______________________________	18
DON'T KNOW	98

18. Did your household participate in the hazardous household waste collection event on September 13?

Yes	1
No	2
DON'T KNOW	8

19a. If your community set up an annual collection site for people to drop off hazardous household waste, do you think your household would participate?

Yes	1
No (SKIP TO Q.20a)	2
DON'T KNOW (SKIP TO Q.20a)	8

b. How many miles would you be willing to travel one way to go to the collection site?

______________ miles

DOES NOT DRIVE	96
DON'T KNOW	98

20. Do you pay special attention to information about . . .

	Yes	No	DK
a. The kinds of household products that are hazardous? . .	1	2	8
b. how to use and store hazardous products safely?	1	2	8
c. the dangers associated with hazardous products?	1	2	8
d. how to dispose of hazardous products safely?	1	2	8
e. nonhazardous alternatives for household use?	1	2	8

21. What is your main source of news and information about local community affairs? (CIRCLE ONE)

Newspaper	01
Radio	02
Television	03
Neighbor or friend	04
Family member	05
School	06
Other (SPECIFY) ________________	07
________________________________	
NONE	97
DON'T KNOW	98

22. What one television station do you most often watch for local news? (CIRCLE ONE)

Channel 3 (WCIA-CBS)	1
Channel 12 (WILL-PBS)	2
Channel 15 (WICD-NBC)	3
Channel 17 (WAND-ABC)	4
Other	5
NONE	7
DON'T KNOW	8

23. Which one local radio station do you listen to most often? (CIRCLE ONE)

FM		AM	
WBGL (91.7)	01	WDWS-AM (1400)	12
WBML (89.3)	02	WILL-AM (580)	13
WDWS-FM (97.5)	03	WJTX (1580)	14
WEFT (90.1)	04	WRTL-AM (1460)	15
WILL-FM (90.9)	05	WSOY-AM (1340)	16
WKIO (K-104) (104 or 103.9)	06	Other (SPECIFY) ______________ ______________________________	17
WLRW (94.5)	07	NONE	97
WPGU (107.1)	08	DON'T KNOW	98
WRTL-FM (95.3)	09		
WSOY (X-103) (103 or 102.9)	10		
WVJL (105.1)	11		

24. What newspapers do you read that carry local news? (CIRCLE ALL THAT APPLY.)

Daily Illini	1
News-Gazette	2
Decatur Herald Review	3
Rantoul Press	4
Other (SPECIFY) ______________ ______________________________	5
NONE	7
DON'T KNOW	8

25. Do you normally vote in local elections?

Yes	1
No	2
DON'T KNOW	8

26. Now I have just a few final questions about you and your household. Do you . . .

recycle all of your household cans, bottles, and newspapers,	1
recycle most of them,	2
recycle some of them, or	3
never recycle them?	4
DON'T KNOW	8

27. Does your neighborhood have a weekly curbside recycling program for cans, bottles, and newspapers?

Yes	1
No	2
DON'T KNOW	8

CHAMPAIGN AND URBANA RESIDENTS CONTINUE TO Q.28
ALL OTHER RESIDENTS SKIP TO Q.30

28. Do you live north or south of University Avenue?

North	1
South	2
DON'T KNOW (SKIP TO Q.30)	8

(URBANA RESIDENTS SKIP TO Q.29b)

(CHAMPAIGN RESIDENTS ONLY:)
29a. Do you live east or west of Prospect Avenue?

East (SKIP TO Q.30)	1
West (SKIP TO Q.30)	2
DON'T KNOW (SKIP TO Q.30)	8

(URBANA RESIDENTS ONLY:)
29b. Do you live east or west of Vine Street or Cunningham Avenue?

East	1
West	2
DON'T KNOW	8

30. Do you live in . . .

a single family house, ... 1
a duplex or two flat, ... 2
an apartment building or townhouse, ... 3
a trailer or mobile home, or 4
something else? (SPECIFY) ______________ 5

____

31. Do you own or rent your home?

Own 1
Rent 2
Other (SPECIFY) ______________ 3

____

32a. Including yourself, how many people currently live in your household?

____
(IF "1," SKIP TO Q.33)

b. How many are adults 65 years of age and older? ______________

c. How many are children 5-17 years of age? ______________

33. What is the highest grade or year of school you have completed?

None 00
Elementary . . 01 02 03 04 05 06 07 08
High school 09 10 11 12
College 13 14 15 16
Some graduate school 17
Graduate or professional degree 18

34. In what year were you born?

19 ______________

35a. Are you currently . . .

Employed full-time, (SKIP TO Q.36) 1

Part-time, or (SKIP TO Q.36) 2

Not employed at all? 3

35b. Are you . . .

Retired, ... 1

Disabled, ... 2

Temporarily unemployed, ... 3

A student (SKIP TO Q.37) 4

Keeping house, or (SKIP TO Q.37) 5

Not employed and not looking for paid employment? (SKIP TO Q.37) 6

Other (SPECIFY) ____________________________ 7

____

(IF "RETIRED," "DISABLED," OR "TEMPORARILY OUT OF WORK," ASK ABOUT LAST OCCUPATION.)

36. What (is/was) your occupation?

Managerial and Professional (accountants, buyers, engineers, teachers, nurses, lawyers, artist, minister, etc.) 1

Technical, Sales, Administrative Support (computer programmers, insurance agents, sales clerks, typists, telephone operators, mail clerks, bookkeepers) 2

Service Occupations (cooks, barbers, police, dental assistants, maids) 3

Farming, Forestry, and Fishing (farm operators, gardeners, farm managers) 4

Precision Production, Craft, and Repair (mechanics, carpenters, painters, plumbers, miners, tailors, butchers, machine operators, welders, truck drivers, laborers) 5

Other (SPECIFY) ____ 6

____

DON'T KNOW 8

37. During 1986, was your total household income before taxes . . .

Less than $15,000 or L
More than $15,000 (SKIP TO Q.39) . . . . . . M
$15,000 exactly (SKIP TO Q.42) 15
DON'T KNOW (SKIP TO Q.42) 98
REFUSED (SKIP TO Q.42) 99

38. Was it . . .

Less than $10,000? No (SKIP TO Q.42) . . . 12
Less than $8,000? No (SKIP TO Q.42) . . . 09
Less than $6,000? No (SKIP TO Q.42) . . . 07
Less than $4,000? No (SKIP TO Q.42) . . . 05
Yes (SKIP TO Q.42) . . . 03
DON'T KNOW (SKIP TO Q.42) 98
REFUSED (SKIP TO Q.42) 99

39. Was it . . .

Less than $30,000 or L
More than $30,000? (SKIP TO Q.41) . . . . . M
$30,000 exactly (SKIP TO Q.42) 30
DON'T KNOW (SKIP TO Q.42) 92
REFUSED (SKIP TO Q.42) 93

40. Was it . . .

Less than $25,000? No (SKIP TO Q.42) . . . 27
Less than $20,000? No (SKIP TO Q.42) . . . 22
Yes (SKIP TO Q.42) . . . 17
DON'T KNOW (SKIP TO Q.42) 94
REFUSED (SKIP TO Q.42) 95

41. Was it . . .

More than $40,000?	No	35
More than $50,000?	No	45
More than $60,000?	No	55
More than $70,000?	No	65
	Yes	80
DON'T KNOW		96
REFUSED		97

42. INTERVIEWER: CIRCLE--BUT DO NOT ASK--SEX OF RESPONDENT.

MALE	1
FEMALE	2

THANK YOU FOR YOUR COOPERATION.

TIME INTERVIEW ENDS: ________:________

TOWNSHIP # ______________

APPENDIX C

QUESTION-BY-QUESTION DESCRIPTIVE STATISTICS, WITH COMPARISONS BETWEEN SAMPLES AND BETWEEN SURVEYS

QUESTION-BY-QUESTION DESCRIPTIVE STATISTICS, WITH COMPARISONS BETWEEN SAMPLES AND BETWEEN SURVEYS

Appendix C consists of tables presenting question-by-question survey findings with between-sample and between-survey comparisons. Each table refers to specific questions in the questionnaires (see Appendix B), and its number is the same as the question number in the July survey. Valid table interpretations depend on full reading of the questionnaires. The following notes apply to the columns in the tables.

Column a: Provides a reference to one or more question number(s) in the questionnaires and specifies to which survey (July or October) the question number applies if the number was different in the two surveys. In parentheses, there may also be listed the question answer codes.

Column b: Gives the brief variable name that is used elsewhere in this report.

Column c: Provides a brief technical description of the variable. If the data presented are not percents, specifies whether they are means or counts. See also the questionnaire for the substance of the variable.

Column d: Percentages, means, or counts are reported here, by sample, for the July survey. The samples are designated by (1) "CUF" for the cities of Champaign and Urbana plus their immediate heavily urbanized fringe, (2) "Decatur" for the city of Decatur, and (3) "Farm" for farmers in Champaign County. The total sample sizes are given in Table C.1. Unless otherwise specifically reported, all percentages, means, and counts are based on the total samples minus cases having "don't know" or question-specific missing data. Also unless otherwise noted, "don't know" plus missing data cases never exceed 4% of the total sample for any variable in the table. All sample percentages, means, and counts are population estimates having certain probabilities of sampling error associated with them. These errors are discussed in Chapter 4.

Column e: This column presents results of t-tests for differences between samples on certain statistics reported in Column d. The three samples provide three pairings, identified in the column heading as follows: (1:2) for Champaign/Urbana/fringe compared with Decatur, (2:3) for Decatur compared with Champaign County farmers, and (1:3) for Champaign/Urbana/fringe compared with Champaign County farmers. Results of t-tests for these comparisons are represented as follows:

- A double asterisk (**) denotes a difference significant at p=.01 or less, two-tailed test (or p=.005 or less for a one-tailed test).

- A single asterisk (*) denotes a difference significant at p=.05 or less, two-tailed (or p=.025 or less, one-tailed).

- A hyphen (-) denotes no difference at p=.05, two-tailed.

- A blank or no entry indicates that no test was conducted, either because both estimates in a comparison were based on cell sizes of 5 or less or because a single overall summary statistic (a mean or a key percentage) was used to test for differences between samples on the variable.

- The letters NA indicate that a test is not applicable.

T-tests were calculated from a pooled variance estimate if an F-test failed to reject the H_0 of equal population variances (at p=.05 or less). If the H_0 of equal variances was rejected, t-tests were carried out using separate variance estimation.

Column f: Contains same information for October 1987 survey as found in Column d for July survey. Also, where appropriate, indicates by superscript letters the significance level of a change between the July and October surveys as follows:

- Letter a indicates that the change is significant at the .05 level or less.

- Letter b indicates that the change is significant at the .01 level or less.

Column g: Contains same information for October 1987 survey as found in Column e for July survey. The t-test results are based on the statistics reported in Column f.

TABLE C.1. Place of Residence (Percents)

(a) Question Number (Answer Code)	(b) Variable Name	(c) Description	July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
			(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.1	CITY	Place of Residence												
(1)	CHAMPAIGN	Residing in City of Champaign	57.7	NA	4.1	NA	NA	NA	60.4	NA	7.8	NA	NA	NA
		(N)	(409)	-	(4)				(443)	-	(12)			
(2)	URBANA	Residing in Urbana	36.8	NA	2.0	NA	NA	NA	32.0	NA	7.8	NA	NA	NA
		(N)	(261)	-	(2)				(235)	-	(12)			
(3)	FRINGE	Residing in fringe of C/U (Sample 1), or in Champaign County outside C/U (Sample 2)	5.5	NA	93.9	NA	NA	NA	7.6	NA	84.3	NA	NA	NA
		(N)	(39)	-	(92)				(56)	-	(129)			
(5)	DECATUR	Residing in Decatur	NA	100.0	NA	NA	NA	NA	NA	100.0	NA	NA	NA	NA
		(N)	-	(151)					-	(150)	-			
		Totals	100.0	100.0	100.0	NA	NA	NA	100.0	100.0	100.0	NA	NA	NA
		(N)	(709)	(151)	(98)				(734)	(150)	(153)			

TABLE C.2. Length of Residence (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.2a	LENGTH OF RESIDENCE													
		Mean length of residence (in years)	15.9	30.5	35.6	**	*	**	15.5	26.8	37.0	**	**	**
	GE35YRS	Resident 35 years or more	13.6	37.7	53.1				14.4	27.5	57.2			
	LE10YRS	Resident 10 years or less	52.0	18.5	11.2				55.3	22.1	16.4			
	LE3YRS	Resident 3 years or less	32.2	9.9	3.1				33.0	8.7	2.6			
b	LT2MOS	Resident less than two months (&, in July survey, expect to be resident in the Fall)	1.7	0.7	0.0				2.9	0.0	0.0			

TABLE C.3. Opinions on Government Spending (Percents)

(a) Question Number	(b) Variable Name	(c) Description	July 1987 Survey: (d) Descriptive Statistics by Sample (1) CUF	(2) Decatur	(3) Farm	(e) T-Tests of Differences between Samples (1:2)	(2:3)	(1:3)	October 1987 Survey: (f) Descriptive Statistics by Sample (1) CUF	(2) Decatur	(3) Farm	(g) T-Tests of Differences between Samples (1:2)	(2:3)	(1:3)
Q.3	SPENDING ON	In Your Community & on These Functions, Is Government Spending...?												
a	ENVIRONMENT	1: Too much $	4.0	6.6	12.2				2.7	3.3	14.4			
		2: About right	34.0	29.8	41.8				33.5	28.7	41.2			
		3: Too little $	30.6	37.1	14.3				31.1	45.3	17.0			
		8: Don't know	31.4	26.5	31.6				32.6	22.7	27.5			
		Mean of 1, 2, 3	2.39	2.41	2.03	-	**	**	2.42	2.54	2.04	-	**	**
b	EDUCATION	1: Too much $	5.1	6.0	5.1				13.5	5.3	12.4			
		2: About right	31.8	33.1	41.8				30.9	31.3	49.0			
		3: Too little $	42.8	45.7	39.8				48.1	54.7	30.1			
		8: Don't know	20.3	15.2	13.3				17.4	8.7	8.5			
		Mean of 1, 2, 3	2.47	2.47	2.40	-	-	-	2.54	2.54	2.19[a]	-	**	**
c	LANDFILL	1: Too much $	5.9	4.0	9.2				5.7	2.7	18.3			
		2: About right	24.6	35.1	28.6				24.5	32.0	22.2			
		3: Too little $	30.1	20.5	16.4				30.8	26.0	17.6			
		8: Don't know	39.4	40.4	43.9				39.0	39.3	41.8			
		Mean of 1, 2, 3	2.40	2.28	2.16	-	-	-	2.41	2.38	1.99	-	**	**

---

[a] Figure in Column f shows a significant change from July survey at .05 level or less.

(Table C.3 continued)

TABLE C.3--Continued.

(a) Question Number	(b) Variable Name	(c) Description	July 1987 Survey: (d) Descriptive Statistics by Sample (1) CUF	(2) Decatur	(3) Farm	(e) T-Tests of Differences between Samples (1:2)	(2:3)	(1:3)	October 1987 Survey: (f) Descriptive Statistics by Sample (1) CUF	(2) Decatur	(3) Farm	(g) T-Tests of Differences between Samples (1:2)	(2:3)	(1:3)
d	ECONOMIC DEVELOPMENT	1: Too much $	6.9	9.9	8.2				9.8	3.3	11.8			
		2: About right	44.6	32.5	52.0				41.8	34.7	49.7			
		3: Too little $	25.1	41.7	12.2				23.3	49.3	15.0			
		8: Don't know	23.3	15.9	27.6				25.1	12.7	23.5			
		Mean of 1, 2, 3	2.24	2.38	2.06	*	**	*	2.18	2.53	2.04	**	**	*
e	DRUG ALCOH'L PROBLEMS	1: Too much $	4.5	2.6	1.0				4.4	2.0	2.6			
		2: About right	28.1	35.1	31.6				26.4	30.0	29.4			
		3: Too little $	43.4	38.4	45.9				47.3	53.3	50.3			
		8: Don't know	24.0	23.8	21.4				21.9	14.7	17.6			
		Mean of 1, 2, 3	2.51	2.47	2.57	-	-	-	2.55	2.60	2.58	-	-	-
f	DISPOSAL OF HAZARDOUS HOUSEHOLD WASTE	1: Too much $	1.7	2.0	4.1				2.7	0.0	5.2			
		2: About right	20.8	27.8	28.6				31.3	26.7	35.3			
		3: Too little $	33.2	24.5	25.5				33.5	38.0	34.0			
		8: Don't know	44.4	45.7	41.8				32.3	35.3	25.5			
		Mean of 1, 2, 3	2.57	2.41	2.37	*	-	*	2.46[b]	2.59[a]	2.39	*	**	-

[a] Figure in Column f shows a significant change from July survey at .05 level or less.

[b] Figure in Column f shows a significant change from July survey at .01 level or less.

TABLE C.4. Heard About Household Hazardous Waste (Percents)

(a) Question Number (Answer Code)	(b) Variable Name	(c) Description	July 1987 Survey: (d) Descriptive Statistics by Sample: (1) CUF	(2) Decatur	(3) Farm	(e) T-Tests of Differences between Samples: (1:2)	(2:3)	(1:3)	October 1987 Survey: (f) Descriptive Statistics by Sample: (1) CUF	(2) Decatur	(3) Farm	(g) T-Tests of Differences between Samples: (1:2)	(2:3)	(1:3)
Q.4a	HEARD OF HHW	Heard Anything About Hazardous Household Waste?												
		Yes, heard of HHW	37.7	28.0	58.2	*	**	**	59.1^{b}	34.7	78.3^{b}	**	**	**
Q.4b	HOW HEARD	How Did You Hear About It?												
(01)	BROCHURE	% of total sample	0.1	0.0	0.0				1.5^{b}	0.7	1.3	-	-	-
		% of "yes" on Q.4a	0.4	0.0	0.0				2.6	1.9	1.7			
(02)	POSTER	% of total sample	0.0	0.7	0.0				0.1	0.0	0.0	-		
		% of "yes" on Q.4a	0 0	2.4	0.0				0.2	0.0	0.0			
(03)	FLYER	% of total sample	0.3	0.7	1.0				6.3^{b}	0.0	7.2	**	**	-
		% of "yes" on Q.4a	0.8	2.4	1.8				10.7	0.0	9.2			
(04)	NEIGHBOR	% of total sample	3.0	0.7	1.0	*	-	-	3.3	2.7	0.7	-	-	**
		% of "yes" on Q.4a	8.0	2.4	1.8				5.6	7.7	0.8			
(05)	FAMILY	% of total sample	0.8	0.0	0.0	-	-	-	1.6	0.7	1.3	-	-	-
		% of "yes" on Q.4a	2.3	0.0	0.0				2.8	1.9	1.7			
(06)	WORK	% of total sample	4.4	3.3	0.0	-		*	3.4	1.3	1.3	-	-	-
		% of "yes" on Q.4a	11.7	11.9	0.0				5.8	3.8	1.7			

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[b] Figure in Column f shows a significant change from July survey at .01 level or less.

(Table C.4 continued)

TABLE C.4--Continued.

(a) Question Number (Answer Code)	(b) Variable Name	(c) Description	July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
			(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
(07)	CLUB	% of total sample	1.1	0.0	3.1	-		-	1.1	0.7	0.0[b]	-		-
		% of "yes" on Q.4a	3.0	0.0	5.3				1.9	1.9	0.0			
(08)	CHURCH	% of total sample	0.0	0.0	0.0				0.1	0.0	0.0			
		% of "yes" on Q.4a	0.0	0.0	0.0				0.2	0.0	0.0			
(09)	FARM BUREAU	% of total sample	0.1	0.0	2.0				0.5	0.0	26.8[b]	-	**	**
		% of "yes" on Q.4a	0.4	0.0	3.5				0.9	0.0	34.5			
(10)	SCHOOL	% of total sample	0.7	0.0	1.0				0.7	1.3	0.0	-	-	-
		% of "yes" on Q.4a	1.9	0.0	1.8				1.2	3.8	0.0			
(11)	LIBRARY	% of total sample	0.0	0.0	0.0				0.0	0.0	0.0			
(12)	NEWSPAPER	% of total sample	15.0	16.6	34.7	-	**	**	31.1[b]	14.0	43.8	**	**	**
		% of "yes" on Q.4a	40.2	59.5	59.6				53.0	40.4	56.3			
(13)	RADIO	% of total sample	5.2	6.0	5.1	-	-	-	9.9[b]	4.7	15.0[b]	*	**	-
		% of "yes" on Q.4a	14.0	21.4	8.8				17.0	13.5	19.3			
(14)	TV	% of total sample	13.3	13.2	25.5	-	*	**	23.4[b]	20.0	29.4	-	-	-
		% of "yes" on Q.4a	35.6	47.6	43.9				40.0	57.7	37.8			
(15)	MAGAZINE	% of total sample	3.7	3.3	12.2	-	*	*	2.9	3.3	9.2	-	*	**
		% of "yes" on Q.4a	9.8	11.9	21.1				4.9	9.6	11.8			

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[b] Figure in Column f shows a significant change from July survey at .01 level or less.

(Table C.4 continued)

TABLE C.4--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number (Answer Code)	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
(16)	MALL	% of total sample	0.0	0.0	0.0				0.0	0.0	0.0			
(17)	FAIR	% of total sample	0.0	0.0	0.0				0.1	0.0	0.0			
		% of "yes" on Q.4a	0.0	0.0	0.0				0.1	0.0	0.0			
(18)	OTHER	% of total sample	3.5	0.0	3.1	*		-	3.3	1.3	2.6	-	-	-
		% of "yes" on Q.4a	9.5	0.0	5.3				5.6	3.8	3.4			

TABLE C.5. Naming Household Hazardous Products

(a) Question Number (Answer Code)	(b) Variable Name	(c) Description	July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
			(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.5a	NAMING HHW	Percent of Samples Naming Various Products as Examples of Hazardous Household Waste												
(01)	LAWN	Lawn & garden products	2.5	4.0	5.1	-	-	-	8.3^b	6.0	9.2	-	-	-
(02)	HERBICIDES	Weed killers or herbicides	4.4	3.3	16.3	-	**	**	3.9	6.0	18.3	-	**	**
(03)	PESTICIDES	Pesticides & poisons	18.6	15.9	29.6	-	*	*	27.8^b	17.3	39.9	**	**	**
(04)	FERTILZER	Fertilizers	2.1	0.0	0.0	-		-	2.9	3.3^a	3.9^a	-	-	-
Q.5b														
(05)	HHLD CLEAN	Household cleaners	25.5	17.2	33.7	*	**	_	22.6	22.7	19.0^a	-	-	-
(06)	OVEN CL	Oven cleaners	2.3	1.3	3.1	-		-	3.0	1.3	2.0	-	-	-
(07)	DRAIN OP	Drain openers	8.2	6.0	4.1	-	-	-	7.1	4.7	9.2	-	-	-
(08)	TOILET CL	Toilet bowl cleaners	4.2	2.0	8.2	-	*	-	3.3	2.7	2.6	-	-	-
(09)	GEN CLEAN	General purpose cleaners	17.2	17.2	14.3	-	-	-	20.3	9.3^a	16.3	**	-	-
(10)	BLEACH	Bleach, ammonia	10.9	11.9	8.2	-	-	-	12.4	14.0	9.2	-	-	-

[a] Figure in Column f shows a significant change from July survey at .05 level or less.

[b] Figure in Column f shows a significant change from July survey at .01 level or less.

(Table C.5 continued)

TABLE C.5--Continued.

(a) Question Number (Answer Code)	(b) Variable Name	(c) Description	July 1987 Survey: (d) Descriptive Statistics by Sample (1) CUF	(2) Decatur	(3) Farm	(e) T-Tests of Differences between Samples (1:2)	(2:3)	(1:3)	October 1987 Survey: (f) Descriptive Statistics by Sample (1) CUF	(2) Decatur	(3) Farm	(g) T-Tests of Differences between Samples (1:2)	(2:3)	(1:3)
Q.5c														
(11)	HOME FIX	Home maintenance products	0.8	0.0	2.0	-		-	4.1^{b}	2.7^{b}	2.0	-	-	-
(12)	PAINTS	Paints, unspecified	7.1	7.3	2.0	-	*	**	13.1^{b}	2.7	15.0^{b}	**	**	-
(13)	VARNISH	Lacquer, oil paint, varnish, etc.	6.6	3.3	2.0	-	-	**	13.9^{b}	6.0	13.1^{b}	**	*	-
(14)	THINNERS	Thinners, strippers, solvents	9.6	2.0	4.1	**	-	*	11.6	4.7	5.9	**		**
(15)	GLUES	Glue, adhesives	0.3	0.0	0.0				0.0	0.0	0.0			
(16)	LIGHTER FL	Charcoal lighter, propane	0.6	0.0	0.0				0.3	0.7	0.0	-		

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^{b}Figure in Column f shows a significant change from July survey at .01 level or less.

(Table C.5 continued)

TABLE C.5--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number (Answer Code)	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.5d														
(17)	AUTOFIX	Automobile products	1.4	1.3	0.0	-		-	3.0^a	0.7	0.7	*		**
(18)	MOTOR OIL	Car motor oil	9.6	3.3	0.0	**		**	7.8	7.3	1.3	-	**	**
(19)	GASOLINE	Gasoline or kerosene	3.2	1.3	1.0	-		-	4.9	4.7	0.0	-	**	**
(20)	ANTIFR'ZE	Car anti-freeze	0.6	1.3	0.0				2.0^a	0.7	0.0	-		-
(22)	BATTERIES	Car, truck, or boat batteries	1.6	2.0	0.0	-		-	1.2	0.7	1.3	-		-
(25)	OTHER	Other materials (e.g., sewage, garbage, aerosols, chemicals)	46.4	35.1	30.6	*	-	**	42.5	46.7^a	32.7	-	*	*
(98)	DK	Don't know	20.0	29.1	24.5	*	-	-	15.9^a	24.0	19.0	*	-	-

[a] Figure in Column f shows a significant change from July survey at .05 level or less.

TABLE C.6. Hazardousness Ratings Given by Respondents (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.6	HAZ'NESS OF	How Hazardous do You Think These Materials Are? (Percentages for "1," "2," & "3" based on only those answering "1," "2," or "3." Percentages for "7" & "8" based on total sample. No other missing data.)												
a	HERBICIDES	1: Not hazardous	3.6	2.2	1.1				2.1	2.8	1.4			
		2: Somewhat hazardous	38.5	42.6	42.2				34.0	40.3	40.6			
		3: Very hazardous	57.9	55.1	56.7				63.9	56.9	58.0			
			100.0	99.9	100.0				100.0	100.0	100.0			
		Mean of 1, 2, 3	2.54	2.53	2.56	-	-	-	2.62[a]	2.54	2.57	-	-	-
		7: Depends	4.2	4.6	6.1				3.3	3.3	6.5			
		8: Don't know	2.0	5.3	2.0				1.6	0.7	3.3			
b	PESTICIDES	1: Not hazardous	1.5	1.5	1.1				1.8	0.7	0.7			
		2: Somewhat hazardous	24.9	39.7	36.7				23.1	33.6	27.1			
		3: Very hazardous	73.7	58.8	62.2				75.1	65.7	72.2			
			100.0	100.0	100.0				100.0	100.0	100.0			
		Mean of 1, 2, 3	2.72	2.57	2.61	**	-	*	2.73	2.65	2.72	-	-	-
		7: Depends	3.8	6.6	7.1				1.8	4.0	5.9			
		8: Don't Know	0.8	3.3	1.0				0.3	0.7	0.0			

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[a] Figure in Column f shows a significant change from July survey at .05 level or less.

(Table C.6 continued)

TABLE C.6--Continued.

(a) Question Number	(b) Variable Name	(c) Description	July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
			(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
c	OVEN CL	1: Not hazardous	7.4	12.0	10.3				7.8	13.5	6.1			
		2: Somewhat hazardous	44.2	44.0	44.8				43.5	48.9	30.5			
		3: Very hazardous	48.4	44.0	44.8				48.7	37.6	63.4			
			100.0	100.0	99.9				100.0	100.0	100.0			
		Mean of 1, 2, 3	2.41	2.32	2.34	-	-	-	2.41	2.24	2.57[b]	**	**	**
		7: Depends	3.1	4.0	2.0				1.8	2.0	0.7			
		8: Don't know	7.5	13.2	9.2				6.1	9.3	13.7			
d	DRAIN OP	1: Not hazardous	6.8	6.9	10.9				6.9	9.3	2.1			
		2: Somewhat hazardous	27.2	38.2	29.3				26.4	30.0	26.1			
		3: Very hazardous	66.0	55.0	59.8				66.8	60.7	71.8			
			100.0	100.1	100.0				100.1	100.0	100.0			
		Mean of 1, 2, 3	2.59	2.48	2.49	-	-	-	2.60	2.51	2.70[a]	-	**	*
		7: Depends	0.1	4.6	1.0				2.5	3.3	2.6			
		8: Don't know	3.5	8.6	5.1				4.1	3.3	4.6			

(Table C.6 continued)

[a] Figure in Column f shows a significant change from July survey at .05 level or less.

[b] Figure in Column f shows a significant change from July survey at .01 level or less.

TABLE C.6--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
e	TOILET CL	1: Not hazardous	15.3	18.1	15.2				13.3	16.9	6.1			
		2: Somewhat hazardous	43.3	46.5	43.5				46.6	43.0	40.1			
		3: Very hazardous	41.4	35.4	41.3				40.1	40.1	53.7			
			100.0	100.0	100.0				100.0	100.1	99.9			
		Mean of 1, 2, 3	2.26	2.17	2.26	-	-	-	2.27	2.23	2.48^a	-	**	**
		7: Depends	2.5	4.0	4.1				2.9	2.7	1.3			
		8: Don't know	4.4	11.9	2.0				5.0	2.7	2.6			
f	VARNISH	1: Not hazardous	14.8	15.3	14.7				13.5	20.3	11.0			
		2: Somewhat hazardous	54.6	55.7	57.9				54.2	54.3	54.4			
		3: Very hazardous	30.6	29.0	30.5				32.3	25.4	34.6			
			100.0	100.0	100.1				100.0	100.0	100.0			
		Mean of 1, 2, 3	2.16	2.14	2.13	-	-	-	2.19	2.05	2.24	*	*	-
		7: Depends	0.3	4.6	2.0				2.0	2.0	3.9			
		8: Don't know	4.7	8.6	1.0				4.0	5.3	7.2			

[a] Figure in Column f shows a significant change from July survey at .05 level or less.

(Table C.6 continued)

TABLE C.6--Continued.

(a) Question Number	(b) Variable Name	(c) Description	July 1987 Survey: (d) Descriptive Statistics by Sample (1) CUF	(2) Decatur	(3) Farm	(e) T-Tests of Differences between Samples (1:2)	(2:3)	(1:3)	October 1987 Survey: (f) Descriptive Statistics by Sample (1) CUF	(2) Decatur	(3) Farm	(g) T-Tests of Differences between Samples (1:2)	(2:3)	(1:3)
g	THINNERS	1: Not hazardous	5.8	9.6	4.3				4.9	9.2	4.2			
		2: Somewhat hazardous	37.7	47.8	46.8				34.7	40.1	50.3			
		3: Very hazardous	56.5	42.6	48.9				60.4	50.7	55.5			
			100.0	100.0	100.0				100.0	100.0	100.0			
		Mean of 1, 2, 3	2.51	2.33	2.45	**	-	-	2.55	2.42	2.51	*	-	-
		7: Depends	3.1	4.6	2.0				1.2	2.7	3.9			
		8: Don't know	2.3	5.3	2.0				2.2	2.7	2.0			
h	LIGHTER FL	1: Not hazardous	7.5	13.0	10.9				8.6	10.7	6.5			
		2: Somewhat hazardous	32.8	43.5	28.6				31.9	34.3	42.0			
		3: Very hazardous	59.7	43.5	60.4				59.5	55.0	51.4			
			100.0	100.0	99.9				100.0	100.0	99.9			
		Mean of 1, 2, 3	2.52	2.31	2.45	**	*	-	2.51	2.44	2.45	-	-	-
		7: Depends	3.1	4.0	3.1				1.5	1.3	3.3			
		8: Don't know	3.1	9.3	4.1				3.7	5.3	6.5			

(Table C.6 continued)

TABLE C.6--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
i	MOTOR OIL	1: Not hazardous	24.6	26.6	30.5				20.4	23.3	29.0			
		2: Somewhat hazardous	53.3	57.3	57.3				56.7	50.4	55.1			
		3: Very hazardous	22.1	16.1	12.2				22.9	26.3	15.9			
			100.0	100.0	100.0				100.0	100.0	100.0			
		Mean of 1, 2, 3	1.98	1.90	1.82				2.02	2.03	1.87	-	-	*
		7: Depends	1.7	2.0	4.1				0.5	2.0	0.7			
		8: Don't know	6.5	15.9	12.2				5.4	6.7	9.2			
j	GASOLINE	1: Not hazardous	6.9	9.5	7.5				7.2	4.1	8.1			
		2: Somewhat hazardous	32.3	32.8	40.9				28.9	32.9	38.9			
		3: Very hazardous	60.8	57.7	51.6				64.0	63.0	53.0			
			100.0	100.0	100.0				100.1	100.0	100.0			
		Mean of 1, 2, 3	2.54	2.48	2.44	-	-	-	2.57	2.59	2.45	-	*	*
		7: Depends	2.8	6.0	4.1				1.6	2.0	2.6			
		8: Don't know	1.6	3.3	1.0				1.2	0.7	0.0			

(Table C.6 continued)

TABLE C.6--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
k	ANTIFREEZE	1: Not hazardous	13.6	16.3	13.0				12.0	13.4	9.6			
		2: Somewhat hazardous	42.9	47.2	51.1				42.6	40.3	42.2			
		3: Very hazardous	43.4	36.6	35.9				45.3	46.3	48.1			
			99.9	100.0	100.0				99.9	100.0	99.9			
		Mean of 1, 2, 3	2.30	2.20	2.23	-	-	-	2.33	2.33	2.39	-	-	-
		7: Depends	2.0	3.3	1.0				1.2	2.0	3.3			
		8: Don't know	7.1	15.2	5.1				8.0	8.7	8.5			
l	BATTERIES	1: Not hazardous	10.0	11.2	9.3				9.5	8.3	6.6			
		2: Somewhat hazardous	39.2	44.0	39.5				35.2	44.7	38.7			
		3: Very hazardous	50.8	44.8	51.2				55.3	47.0	54.7			
			100.0	100.0	100.0				100.0	100.0	100.0			
		Mean of 1, 2, 3	2.41	2.34	2.42	-	-	-	2.46	2.39	2.48	-	-	-
		7: Depends	2.5	4.6	2.0				1.4	3.3	3.3			
		8: Don't know	7.2	12.6	10.2				4.2	8.7	7.2			

TABLE C.7. Past Possession of Hazardous Products (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.7	HAD ANY AROUND	In the Past 12 Months, Have You Had Any (Item) at or around Your Home, Garage, or Shed?												
a	HERBICIDES	Yes	34.9	49.0	78.6	**	**	**	31.3	48.7	73.5	**	**	**
b	PESTICIDES	Yes	55.4	57.6	82.3	-	**	**	55.0	67.3	78.9	**	*	**
c	OVEN CL	Yes	42.0	42.3	42.6	-	-	-	44.0	50.7	44.0	-	-	-
d	DRAIN OP	Yes	42.8	43.3	44.8	-	-	-	46.0	47.3	57.6[a]	-	-	**
e	TOILET CL	Yes	73.8	77.2	86.7	-	-	**	68.3[a]	79.9	90.6	**	**	**
f	VARNISH	Yes	46.7	49.0	67.0	-	**	**	50.1	54.0	76.5	-	**	**
g	THINNERS	Yes	40.2	45.7	55.7	-	-	**	43.6	46.6	68.0[a]	-	**	**
h	LIGHTER FL	Yes	68.6	63.6	78.6	-	*	*	67.4	63.3	78.3	-	**	**
i	MOTOR OIL	Yes	60.0	56.3	85.6	-	**	**	54.6[a]	63.0	84.8	-	**	**
j	GASOLINE	Yes	58.1	75.5	86.7	**	*	**	50.3[b]	70.0	84.3	**	**	**
k	ANTIFR'ZE	Yes	51.0	53.6	76.8	-	**	**	45.1[a]	56.2	79.2	*	**	**
l	BATTERIES	Yes	11.6	17.2	36.5	-	**	**	11.7	12.8	46.3	-	**	**

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[a] Figure in Column f shows a significant change from July survey at .05 level or less.

[b] Figure in Column f shows a significant change from July survey at .01 level or less.

TABLE C.8a(1). Current Possession of Materials (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.8a	HAVE ANY AROUND	Do You Currently Have...? ("Don't know" from Q.7 & Q.8a excluded from base, but sometimes exceeds 4% of total sample. See detail in Table Q.8a(2).)												
a	HERBICIDES	Yes	26.0	38.8	53.6	**	**	**	25.4	40.9	50.8	**	-	**
b	PESTICIDES	Yes	47.8	49.7	70.9	-	**	**	46.7	58.1	61.8	*	-	**
c	OVEN CL	Yes	32.7	29.1	35.9	-	-	-	34.7	40.5[a]	34.5	-	-	-
d	DRAIN OP	Yes	31.2	28.0	36.5	-	-	-	33.2	36.7	43.5	-	-	*
e	TOILET CL	Yes	62.6	65.1	81.1	-	**	**	59.1	71.8	81.9	**	*	**
f	VARNISH	Yes	39.8	41.4	58.2	-	**	**	39.9	46.6	69.2	-	**	**
g	THINNERS	Yes	32.6	38.8	46.7	-	-	*	35.0	39.5	59.9	-	**	**
h	LIGHTER FL	Yes	58.8	58.3	74.2	-	**	**	54.6	55.3	70.2	-	**	**
i	MOTOR OIL	Yes	39.1	40.0	70.7	-	**	**	35.0	44.1	71.2	*	**	**
j	GASOLINE	Yes	46.8	65.3	78.1	**	*	**	38.2[b]	60.4	73.8	**	*	**
k	ANTIFR'ZE	Yes	28.9	31.5	50.0	-	**	**	29.2	39.0	63.4	*	**	**
l	BATTERIES	Yes	7.6	11.3	27.2	-	*	**	7.6	10.1	32.2	-	**	**

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[a] Figure in Column f shows a significant change from July survey at .05 level or less.

[b] Figure in Column f shows a significant change from July survey at .01 level or less.

TABLE C.8a(2). Quantity Now Possessed (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.8a	HAVE ANY AROUND	How Many Containers of (Item) Do You Currently Have? ("Don't know" and missing data from Q.7 and "don't know" from Q.8a excluded from base for all but "Don't know" row, where base is total sample.)												
	a HERBICIDES	No containers	74.0	61.2	46.4	**	**	**	74.6	59.1	49.2	**	-	**
		1	14.6	22.4	10.7				12.2	22.1	16.2			
		2 or 3	7.6	12.9	25.0				9.7	15.5	20.8			
		4 - 9	3.0	3.4	9.5				2.6	2.7	9.2			
		10 or more	0.9	0.0	8.3				1.0	0.7	4.6			
			100.1	99.9	99.9				100.1	100.1	100.0			
		Mean for those with cont'rs	2.35	1.74	5.27	*	**	**	2.55	1.93	4.06	-	*	-
		(N)	(182)	(57)	(45)				(184)	(61)	(66)			
		Don't know	1.1	2.6	14.3				0.5	0.7	13.7			
	b PESTICIDES	No containers	52.2	50.3	29.1	-	**	**	53.3	41.9	38.2	*	-	**
		1	24.9	28.2	22.1				23.1	31.1	22.2			
		2 or 3	18.5	18.1	37.2				17.5	22.3	26.4			
		4 - 9	3.3	2.0	10.5				5.5	4.7	9.7			
		10 or more	1.1	1.3	1.2				0.6	0.0	3.5			
			100.0	99.9	100.1				100.0	100.0	100.0			
		Mean for those with cont'rs	2.02	1.97	2.89	-	*	**	2.09	1.83	3.03	-	**	*
		(N)	(336)	(74)	(61)				(339)	(86)	(89)			
		Don't know	0.8	1.3	12.2				1.1	1.3	5.2			

(Table C.8a(2) continued)

TABLE C.8a(2)--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
c	OVEN CL	No containers	67.3	70.9	64.1	-	-	-	65.3	59.5	65.5	-	-	-
		1	30.2	27.7	32.6				31.4	37.8	31.0			
		2 or more	2.4	1.4	3.3				3.3	2.7	3.4			
			99.9	100.0	100.0				100.0	100.0	99.9			
		Mean for those with cont'rs	1.16	1.05	1.09	-	-	-	1.16	1.08	1.10	-	-	-
		(N)	(229)	(43)	(33)				(251)	(60)	(50)			
		Don't know	1.1	2.0	6.1				0.4	1.3	3.3			
d	DRAIN OP	No containers	68.8	72.0	63.5	-	-	-	66.8	63.3	56.5	-	-	*
		1	28.4	23.3	26.0				29.1	33.3	34.7			
		2 or more	2.9	4.7	10.4				4.1	3.4	8.8			
			100.1	100.0	99.9				100.0	100.0	100.0			
		Mean for those with cont'rs	1.12	1.19	1.37	-	-	-	1.15	1.09	1.28	-	-	-
		(N)	(219)	(42)	(35)				(242)	(54)	(64)			
		Don't know	1.1	0.7	2.0				0.5	0.7	2.6			

(Table C.8a(2) continued)

TABLE C.8a(2)--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
e	TOILET CL	No containers	37.4	34.9	18.8	-	**	**	40.9	28.2	28.1	**	*	**
		1	50.8	47.3	50.0				45.3	55.7	59.7			
		2	10.3	14.4	21.9				9.9	12.1	18.1			
		3 or more	1.4	3.4	9.4				3.9	4.0	4.2			
			99.9	100.0	100.1				100.0	100.0	100.1			
		Mean for those with cont'rs	1.23	1.33	1.51	-	-	*	1.34	1.39	1.33	-	-	-
		(N)	(436)	(95)	(78)				(429)	(107)	(118)			
		Don't know	1.7	3.3	2.0				1.0	0.0	3.3			
f	VARNISH	No containers	60.2	58.6	41.8	-	**	**	60.1	53.4	30.8	-	**	**
		1	10.2	8.3	8.8				8.4	10.8	9.1			
		2 or 3	14.4	13.1	18.7				13.3	13.5	25.2			
		4 - 9	9.2	14.5	15.4				11.3	16.9	18.2			
		10 or more	5.9	5.5	15.4				6.9	5.4	16.8			
			99.9	100.0	100.1				100.0	100.0	100.1			
		Mean for those with cont'rs	4.97	4.40	6.34	-	**	**	5.20	4.75	6.38	-	-	-
		(N)	(276)	(60)	(53)				(285)	(69)	(99)			
		Don't know	2.1	4.0	7.1				2.2	1.3	6.5			

(Table C.8a(2) continued)

TABLE C.8a(2)--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
g	THINNERS	No containers	67.4	61.2	53.3	-	-	*	65.0	60.5	40.1	-	**	**
		1	14.6	18.4	18.9				15.6	22.4	24.5			
		2 or 3	13.4	15.6	21.1				13.2	11.6	24.5			
		4 or more	4.6	4.8	6.7				6.3	5.4	10.9			
			100.0	100.0	100.0				100.1	99.9	100.0			
		Mean for those with cont'rs	2.59	2.10	2.17	-	-	*	2.83	3.91	2.89	-	-	-
		(N)	(226)	(57)	(42)				(252)	(58)	(88)			
		Don't know	2.1	2.6	8.2				1.1	0.7	3.9			
h	LIGHTER FL	No containers	41.2	41.7	25.8	-	**	**	45.4	44.7	29.8	-	**	**
		1	45.5	40.4	48.5				43.6	44.0	45.0			
		2 or 3	12.0	16.6	18.6				9.6	10.7	19.9			
		4 or more	1.3	1.3	7.2				1.4	0.7	5.3			
			100.0	100.0	100.1				100.0	100.1	100.0			
		Mean for those with cont'rs	1.42	1.50	1.69	-	-	*	1.29	1.27	1.67	-	**	**
		(N)	(506)	(88)	(72)				(399)	(83)	(106)			
		Don't know	0.3	0.0	1.0				0.0	0.0	0.7			

(Table C.8a(2) continued)

TABLE C.8a(2)--Continued.

(a) Question Number	(b) Variable Name	(c) Description	July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
			(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
1	MOTOR OIL	No containers	60.9	60.0	29.3	-	**	**	65.0	55.9	28.8	*	**	**
		1	8.2	5.5	17.1				8.1	9.1	15.9			
		2 or 3	12.2	13.8	14.6				11.8	14.7	13.6			
		4 - 9	9.3	10.3	11.0				7.5	12.6	12.9			
		10 - 19	5.9	6.2	11.0				4.6	4.2	9.8			
		20 - 40	3.0	3.4	11.0				2.8	2.1	12.9			
		41 or more	0.4	0.7	6.1				0.3	1.4	6.1			
			99.9	99.9	100.0				100.1	100.0	100.0			
		Mean for those with cont'rs	6.66	7.10	16.84	-	**	**	6.25	6.68	13.14	-	**	**
		(N)	(270)	(58)	(58)				(253)	(63)	(94)			
		Mean, dropping highest case			11.67				4.75		12.20			
		(N)			(57)				(252)		(93)			
		Don't know	2.5	4.0	16.3				1.4	2.0	12.4			
j	GASOLINE	No containers	53.2	34.7	21.9	**	*	**	61.8[b]	39.6	26.2	**	*	**
		1	37.7	46.7	46.9				30.4	43.6	43.0			
		2 or 3	7.8	17.3	22.9				6.7	15.4	22.8			
		4 or more	1.3	1.3	8.3				1.1	1.4	8.1			
			100.0	100.0	100.0				100.0	100.0	100.1			
		Mean for those with cont'rs	1.29	1.44	1.85	*	*	**	1.33	1.43	1.89	-	*	**
		(N)	(330)	(98)	(75)				(279)	(90)	(110)			
		Don't know	0.6	0.7	2.0				0.3	0.7	2.6			

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[b] Figure in Column f shows a significant change from July survey at .01 level or less.

(Table C.8a(2) continued)

TABLE C.8a(2)--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
k	ANTIFR'ZE	No containers	71.1	68.5	50.0	-	**	**	70.8	61.0	36.6[a]	*	**	**
		1	21.6	20.1	22.6				21.0	29.4	18.3			
		2 or 3	5.5	8.7	14.3				6.8	8.2	17.6			
		4 or more	1.7	2.7	13.1				1.4	1.4	27.5			
			99.9	100.0	100.0				100.0	100.0	100.0			
		Mean for those with cont'rs	1.00	1.72	3.71	*	**	**	1.50	1.47	5.59	-	**	**
		(N)	(300)	(47)	(45)				(210)	(57)	(83)			
		Don't know	2.3	1.3	14.3				0.8	0.7	11.8			
l	BATTERIES	No containers	92.4	88.7	72.6	-	*	**	92.4	89.9	67.8	-	**	**
		1	5.7	6.6	8.7				5.8	4.7	4.2			
		2 or more	1.9	4.7	18.5				1.8	5.4	28.0			
			100.0	100.0	100.0				100.0	100.0	100.0			
		Mean for those with cont'rs	1.38	1.71	4.24	-	**	**	1.45	2.13	6.07	-	*	**
		(N)	(53)	(17)	(25)				(55)	(15)	(46)			
		Don't know	1.6	0.0	6.1				0.0	0.0	3.9			

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[a] Figure in Column f shows a significant change from July survey at .05 level or less.

TABLE C.8b. Having Unwanted Materials (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.8b	UNWANTED	Is Any of It Unwanted That You Would Like to Get Rid Of? (Don't know" and missing data from Q.7 and "don't know" from Q.8b excluded.)												
a	HERBICIDES	Yes	1.9	2.0	0.0	-		-	1.4	2.0	4.8[a]	-	-	-
		(N)	(13)	(3)	(0)				(10)	(3)	(7)			
b	PESTICIDES	Yes	2.4	1.3	3.1	-		-	2.3	1.3	2.7	-		-
		(N)	(17)	(2)	(3)				(17)	(2)	(4)			
c	OVEN CL	Yes	1.1	0.7	1.1	-		-	1.0	1.4	0.7	-		-
		(N)	(8)	(1)	(1)				(7)	(2)	(1)			
d	DRAIN OP	Yes	0.8	0.7	0.0	-		-	1.0	1.4	0.0	-		-
		(N)	(6)	(1)	(0)				(7)	(2)	(0)			
e	TOILET CL	Yes	0.6	0.0	2.0				0.7	0.0	0.0	-		-
		(N)	(4)	(0)	(2)				(5)	(0)	(0)			
f	VARNISH	Yes	3.1	3.4	3.1	-	-	-	5.9[a]	5.3	4.6	-	-	-
		(N)	(22)	(5)	(3)				(43)	(8)	(7)			
g	THINNERS	Yes	1.4	2.0	1.0	-		-	2.6	2.0	1.0	-		-
		(N)	(10)	(3)	(1)				(19)	(3)	(2)			
h	LIGHTER FL	Yes	0.6	0.0	1.0				1.0	0.0	0.7	-		-
		(N)	(4)	(0)	(1)				(7)	(0)	(1)			
i	MOTOR OIL	Yes	3.6	1.3	7.3	-	*	-	2.9	1.4	5.4	-	-	-
		(N)	(25)	(2)	(7)				(21)	(2)	(8)			
j	GASOLINE	Yes	0.1	0.7	0.0				0.8	0.0	0.0			
		(N)	(1)	(1)	(0)				(6)	(0)	(0)			
k	ANTIFR'ZE	Yes	0.6	0.7	0.0				0.0	0.0	0.0			
		(N)	(4)	(1)	(0)				(0)	(0)	(0)			
l	BATTERIES	Yes	2.4	4.0	7.4	-	-	-	2.6	2.0	16.4[a]	-	**	**
		(N)	(17)	(6)	(7)				(19)	(3)	(24)			

[a] Figure in Column f shows a significant change from July survey at .05 level or less.

TABLE C.9. Materials Disposed Of (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.9a	DISPOSE OF	In the Past 12 Months, Have You Disposed of Any...? ("Don't know" and missing data from Q.7 and "don't know" from Q.9a excluded.)												
Q.9b (July) Q.9c (Oct.)	HOW DISPOSED OF?	How Do You Normally Dispose Of...? (Denominator for percentages is total of "Yes" plus "No" in Q.9a.)												
Q.9c (July) Q.9b (Oct.)	DISPOSED OF HOW MUCH?	How Many Containers Did You Dispose Of...? (Means based only on disposers reporting quantities disposed.)												
Q.9a a	HERBICIDES	No, none disposed of	97.3	95.3	94.7				97.8	98.7	89.7			
		(N)	(686)	(143)	(89)				(711)	(147)	(133)			
		Yes, some disposed of	2.7	4.7	5.3	-	-	-	2.2	1.3	10.3	-	*	-
		(N)	(19)	(7)	(5)				(16)	(2)	(15)			
Q.9b a (July) Q.9c a (Oct.)		1: Recycled	0.0	0.0	0.0				0.1	0.0	2.0			
		(N)	(0)	(0)	(0)				(1)	(0)	(3)			
		2: Disp'l Colltn Site	0.1	0.7	0.0				1.0	0.0	3.4			
		(N)	(1)	(1)	(0)				(7)	(0)	(5)			
		3: Dump on ground	0.3	0.0	0.0				0.0	0.0	2.0			
		(N)	(2)	(0)	(0)				(0)	(0)	(3)			
		4: Sewer, Drain	0.0	0.0	0.0				0.0	0.0	0.0			
		(N)	(0)	(0)	(0)				(0)	(0)	(0)			
		5: Garbage, Landfill	1.7	3.3	0.0				1.2	1.3	1.3			
		(N)	(12)	(5)	(0)				(9)	(2)	(2)			
		6: Other	0.0	0.0	2.1				0.0	0.0	0.7			
		(N)	(0)	(0)	(2)				(0)	(0)	(1)			
		8: Don't know, no answer	0.6	1.3	3.2				0.0	0.0	0.7			
		(N)	(4)	(2)	(3)				(0)	(0)	(1)			
Q.9c a (July) Q.9b a (Oct.)		Mean # of containers disposed, for disposers who reported quantities	2.21	1.71	3.33				3.73	2.00	2.55			
		(N for disposers)	(14)	(6)	(2)				(15)	(2)	(11)			

(Table C.9 continued)

TABLE C.9--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.9a b	PESTICIDES	No, none disposed of	95.5	98.0	97.8				96.2	96.6	94.6			
		(N)	(674)	(150)	(93)				(704)	(144)	(139)			
		Yes, some disposed of	4.5	2.0	2.2	-	-	-	3.8	3.4	5.4	-	-	-
		(N)	(32)	(3)	(2)				(28)	(5)	(8)			
Q.9b b (July) Q.9c b (Oct.)		1: Recycled	0.0	0.0	0.0				0.1	0.0	0.7			
		(N)	(0)	(0)	(0)				(1)	(0)	(1)			
		2: Disp'l Colltn Site	0.1	0.7	0.0				0.1	0.0	0.7			
		(N)	(1)	(1)	(0)				(1)	(0)	(1)			
		3: Dump on ground	0.1	0.0	0.0				0.0	0.0	0.7			
		(N)	(1)	(0)	(0)				(0)	(0)	(1)			
		4: Sewer, Drain	0.0	0.0	0.0				0.0	0.0	0.0			
		(N)	(0)	(0)	(0)				(0)	(0)	(0)			
		5: Garbage, Landfill	4.0	1.3	0.0				3.6	3.4	2.0			
		(N)	(28)	(2)	(0)				(26)	(5)	(3)			
		6: Other	0.0	0.0	1.1				0.0	0.0	1.3			
		(N)	(0)	(0)	(1)				(0)	(0)	(2)			
		8: Don't know, no answer	0.3	0.0	1.1				0.0	0.0	0.0			
		(N)	(2)	(0)	(1)				(0)	(0)	(0)			
Q.9c b (July) Q.9b b (Oct.)		Mean # of containers disposed, for disposers who reported quantities	2.66	2.00	6.00				3.35	1.80	2.50			
		(N for disposers)	(27)	(3)	(1)				(26)	(5)	(8)			

(Table C.9 continued)

TABLE C.9--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.9a c	OVEN CL	No, none disposed of	96.9	96.0	97.9				96.1	98.0	99.3			
		(N)	(679)	(143)	(92)				(693)	(145)	(148)			
		Yes, some disposed of	3.1	4.0	2.1	-	-	-	3.9	2.0	0.7	-	-	**
		(N)	(22)	(6)	(2)				(28)	(3)	(1)			
Q.9b c		1: Recycled	0.0	0.0	0.0				0.0	0.0	0.0			
(July)		(N)	(0)	(0)	(0)				(0)	(0)	(0)			
Q.9c c		2: Disp'l Colltn Site	0.1	0.0	0.0				0.3	0.0	0.0			
(Oct.)		(N)	(1)	(1)	(0)				(2)	(0)	(0)			
		3: Dump on ground	0.0	0.0	0.0				0.0	0.0	0.0			
		(N)	(0)	(0)	(0)				(0)	(0)	(0)			
		4: Sewer, Drain	0.0	0.0	0.0				0.0	0.0	0.0			
		(N)	(0)	(0)	(0)				(0)	(0)	(0)			
		5: Garbage, Landfill	2.9	4.0	2.1				3.2	2.0	0.7			
		(N)	(20)	(6)	(2)				(23)	(3)	(1)			
		6: Other	0.0	0.0	0.0				0.3	0.0	0.0			
		(N)	(0)	(0)	(0)				(2)	(0)	(0)			
		8: Don't know, no answer	0.1	0.0	0.0				0.1	0.0	0.0			
		(N)	(1)	(0)	(0)				(1)	(0)	(0)			
Q.9c c (July) Q.9b c (Oct.)		Mean # of containers disposed, for disposers who reported quantities	2.62	1.33	1.00				1.37	1.33	1.00			
		(N for disposers)	(21)	(6)	(2)				(27)	(3)	(1)			

(Table C-9 continued)

TABLE C.9--Continued.

(a) Question Number	(b) Variable Name	(c) Description	July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
			(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.9a d	DRAIN OP	No, none disposed of	98.9	99.3	99.0				97.3	98.7	99.3			
		(N)	(698)	(147)	(96)				(712)	(730)	(150)			
		Yes, some disposed of	1.1	0.7	1.0	-	-	-	2.7[a]	1.3	0.7	-	-	*
		(N)	(8)	(1)	(1)				(20)	(2)	(1)			
Q.9b d		1: Recycled	0.0	0.0	0.0				0.3	0.0	0.0			
(July)		(N)	(0)	(0)	(0)				(2)	(0)	(0)			
Q.9c d		2: Disp'l Colltn Site	0.0	0.0	0.0				0.0	0.0	0.0			
(Oct.)		(N)	(0)	(0)	(0)				(0)	(0)	(0)			
		3: Dump on ground	0.0	0.0	0.0				0.0	0.0	0.0			
		(N)	(0)	(0)	(0)				(0)	(0)	(0)			
		4: Sewer, Drain	0.0	0.0	0.0				0.1	0.0	0.0			
		(N)	(0)	(0)	(0)				(1)	(0)	(0)			
		5: Garbage, Landfill	1.0	0.7	1.0				2.0	1.3	0.7			
		(N)	(7)	(1)	(1)				(15)	(2)	(1)			
		6: Other	0.0	0.0	0.0				0.1	0.0	0.0			
		(N)	(0)	(0)	(0)				(1)	(0)	(0)			
		8: Don't know, no answer	0.1	0.0	0.0				0.0	0.0	0.0			
		(N)	(1)	(0)	(0)				(0)	(0)	(0)			
Q.9c d (July) Q.9b d (Oct.)		Mean # of containers disposed, for disposers who reported quantities	1.14	2.00	1.00				1.56	1.00	1.00			
		(N)	(7)	(1)	(1)				(18)	(2)	(1)			

(Table C.9 continued)

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[a] Figure in Column f shows a significant change from July survey at .05 level or less.

TABLE C.9--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.9a e	TOILET CL	No, none disposed of	96.4	99.3	96.9				96.5	97.3	97.3			
		(N)	(703)	(148)	(95)				(706)	(143)	(145)			
		Yes, some disposed of	3.6	0.7	3.1	-	-	-	3.5	2.7	2.7	-	-	-
		(N)	(25)	(1)	(3)				(26)	(4)	(4)			
Q.9b e (July) Q.9c e (Oct.)		1: Recycled	0.0	0.0	1.0				0.0	0.0	0.0			
		(N)	(0)	(0)	(1)				(0)	(0)	(0)			
		2: Disp'l Colltn Site	0.1	0.0	0.0				0.1	0.0	0.0			
		(N)	(1)	(0)	(0)				(1)	(0)	(0)			
		3: Dump on ground	0.0	0.0	0.0				0.0	0.0	0.0			
		(N)	(0)	(0)	(0)				(0)	(0)	(0)			
		4: Sewer, Drain	0.1	0.0	0.0				0.3	0.0	0.0			
		(N)	(1)	(0)	(0)				(2)	(0)	(0)			
		5: Garbage, Landfill	3.3	0.7	3.1				3.0	2.7	2.0			
		(N)	(23)	(1)	(3)				(22)	(4)	(3)			
		6: Other	0.0	0.0	0.0				0.0	0.0	0.7			
		(N)	(0)	(0)	(0)				(0)	(0)	(1)			
		8: Don't know, no answer	0.1	0.0	0.0				0.0	0.0	0.0			
		(N)	(1)	(0)	(0)				(0)	(0)	(0)			
Q.9c e (July) Q.9b e (Oct.)		Mean # of containers disposed, for disposers who reported quantities	3.04	1.00	3.00				1.96	1.75	12.50			
		(N for disposers)	(25)	(1)	(4)				(25)	(4)	(2)			
		Mean # of containers, dropping case with highest value	2.33								1.00			
		(N)	(24)								(1)			

(Table C.9 continued)

TABLE C.9--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.9a f	VARNISH	No, none disposed of	92.9	94.0	92.6				91.7	87.3	90.8			
		(N)	(654)	(142)	(88)				(664)	(130)	(138)			
		Yes, some disposed of	7.1	6.0	7.4	-	-	-	9.3	12.7[a]	9.2	-	-	-
		(N)	(50)	(9)	(7)				(60)	(19)	(14)			
Q.9b f		1: Recycled	0.0	0.0	0.0				0.1	0.0	0.0			
(July)		(N)	(0)	(0)	(0)				(1)	(0)	(0)			
Q.9c f		2: Disp'l Colltn Site	0.3	0.0	0.0				0.7	0.0	2.0			
(Oct.)		(N)	(2)	(0)	(0)				(5)	(0)	(3)			
		3: Dump on ground	0.0	1.3	0.0				0.3	0.7	0.0			
		(N)	(0)	(2)	(0)				(2)	(1)	(0)			
		4: Sewer, Drain	0.1	0.0	0.0				0.3	0.7	0.0			
		(N)	(1)	(0)	(0)				(2)	(1)	(0)			
		5: Garbage, Landfill	6.4	4.6	5.3				6.4	10.7	4.6			
		(N)	(45)	(7)	(5)				(46)	(16)	(7)			
		6: Other	0.1	0.0	1.1				0.3	0.7	2.6			
		(N)	(1)	(0)	(1)				(2)	(1)	(4)			
		8: Don't know, no answer	0.1	0.0	2.1				0.0	0.0	0.0			
		(N)	(1)	(0)	(2)				(0)	(0)	(0)			
Q.9c f (July) Q.9b f (Oct.)		Mean # of containers disposed, for disposers who reported quantities	2.79	1.33	3.33				3.40	3.89	3.77			
		(N for disposers)	(48)	(9)	(6)				(57)	(19)	(13)			
		Mean # of containers, dropping case with highest value	2.21		2.40									
		(N)	(47)		(5)									

(Table C.9 continued)

TABLE C.9--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.9a g	THINNERS	No, none disposed of	96.4	99.3	95.8				96.0	97.3	98.0			
		(N)	(679)	(150)	(91)				(690)	(143)	(149)			
		Yes, some disposed of	3.6	0.7	4.2	-	-	-	4.0	2.7	2.0	-	-	-
		(N)	(25)	(1)	(4)				(29)	(4)	(3)			
Q.9b g		1: Recycled	0.0	0.0	0.0				0.3	0.0	0.0			
(July)		(N)	(0)	(0)	(0)				(2)	(0)	(0)			
Q.9c g		2: Disp'l Colltn Site	0.0	0.0	0.0				0.5	0.0	0.0			
(Oct.)		(N)	(0)	(0)	(0)				(3)	(0)	(0)			
		3: Dump on ground	0.3	0.7	0.0				0.3	0.0	0.0			
		(N)	(2)	(1)	(0)				(2)	(0)	(0)			
		4: Sewer, Drain	0.1	0.0	0.0				0.3	0.7	0.0			
		(N)	(1)	(0)	(0)				(2)	(1)	(0)			
		5: Garbage, Landfill	2.8	0.0	3.2				2.5	2.0	1.3			
		(N)	(20)	(0)	(3)				(18)	(3)	(2)			
		6: Other	0.3	0.0	0.0				0.1	0.0	0.7			
		(N)	(2)	(0)	(0)				(1)	(0)	(1)			
		8: Don't know, no answer	0.0	0.0	2.1				0.0	0.0	0.0			
		(N)	(0)	(0)	(2)				(0)	(0)	(0)			
Q.9c g (July) Q.9b g (Oct.)		Mean # of containers disposed, for disposers who reported quantities	2.13	1.00	1.00				2.15	6.00	2.00			
		(N for disposers)	(24)	(1)	(3)				(27)	(4)	(3)			

(Table C.9 continued)

TABLE C.9--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.9a h	LIGHTER FL	No, none disposed of	97.2	98.7	95.9				98.2	98.7	98.0			
		(N)	(688)	(149)	(98)				(717)	(147)	(149)			
		Yes, some disposed of	2.8	1.3	4.1	-	-	-	1.8	1.3	2.0	-	-	-
		(N)	(20)	(2)	(4)				(13)	(2)	(3)			
Q.9b h		1: Recycled	0.1	0.0	0.0				0.0	0.0	0.0			
(July)		(N)	(1)	(0)	(0)				(0)	(0)	(0)			
Q.9c h		2: Disp'l Colltn Site	0.0	0.0	0.0				0.0	0.0	0.0			
(Oct.)		(N)	(0)	(0)	(0)				(0)	(0)	(0)			
		3: Dump on ground	0.0	0.0	0.0				0.0	0.0	0.0			
		(N)	(0)	(0)	(0)				(0)	(0)	(0)			
		4: Sewer, Drain	0.0	0.0	0.0				0.0	0.0	0.0			
		(N)	(0)	(0)	(0)				(0)	(0)	(0)			
		5: Garbage, Landfill	2.4	1.3	3.1				1.7	1.3	2.0			
		(N)	(17)	(2)	(3)				(12)	(2)	(3)			
		6: Other	0.1	0.0	0.0				0.1	0.0	0.0			
		(N)	(1)	(0)	(0)				(1)	(0)	(0)			
		8: Don't know, no answer	0.1	0.0	2.1				0.0	0.0	0.0			
		(N)	(1)	(0)	(2)				(0)	(0)	(0)			
Q.9c h (July) Q.9b h (Oct.)		Mean # of containers disposed, for disposers who reported quantities	2.28	2.00	1.00				1.58	1.00	4.33			
		(N for disposers)	(18)	(2)	(3)				(12)	(2)	(3)			

(Table C.9 continued)

TABLE C.9--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.9a 1	MOTOR OIL	No, none disposed of	85.3	90.0	82.3				85.4	88.4	7.16			
		(N)	(599)	(135)	(79)				(620)	(129)	(106)			
		Yes, some disposed of	14.7	10.0	17.7	-	-	-	14.6	11.6	28.4	-	**	**
		(N)	(103)	(15)	(17)				(106)	(17)	(42)			
Q.9b 1		1: Recycled	4.1	1.3	8.3				6.1	3.5	13.5			
(July)		(N)	(29)	(2)	(8)				(44)	(5)	(20)			
Q.9c 1		2: Disp'l Colltn Site	1.1	0.7	1.0				0.8	0.7	2.7			
(Oct.)		(N)	(8)	(1)	(1)				(6)	(1)	(4)			
		3: Dump on ground	1.7	2.7	0.0				1.1	0.7	2.7			
		(N)	(12)	(4)	(0)				(8)	(1)	(4)			
		4: Sewer, Drain	1.3	0.0	1.0				0.0	0.0	0.0			
		(N)	(2)	(0)	(1)				(0)	(0)	(0)			
		5: Garbage, Landfill	6.0	2.7	2.1				5.4	6.2	2.0			
		(N)	(42)	(4)	(2)				(39)	(9)	(3)			
		6: Other	1.0	2.0	1.0				0.6	0.7	6.8			
		(N)	(7)	(3)	(1)				(4)	(1)	(10)			
		8: Don't know, no answer	0.4	0.7	4.2				0.6	0.0	0.7			
		(N)	(3)	(1)	(4)				(4)	(0)	(1)			
Q.9c 1 (July) Q.9b 1 (Oct.)		Mean # of containers disposed, for disposers who reported quantities	7.51	7.46	6.30				5.35	8.33	12.38			
		(N for disposers)	(103)	(13)	(10)				(101)	(15)	(32)			
		Mean # of containers, dropping case with highest value	6.02	5.58	4.78				4.85	5.36	9.55			
			(102)	(12)	(9)				(100)	(14)	(31)			
		Median # of containers	4	4	3				3	4	4			
		(N)	(103)	(13)	(10)				(101)	(15)	(32)			

(Table C.9 continued)

TABLE C.9--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.9a j	GASOLINE	No, none disposed of	98.7	98.0	95.9				99.7	100.0	98.7			
		(N)	(700)	(151)	(94)				(731)	(150)	(151)			
		Yes, some disposed of	1.3	2.0	4.1	-	-	-	0.3[a]	0.0	1.3	-	-	-
		(N)	(9)	(3)	(4)				(2)	(0)	(2)			
Q.9b j (July) Q.9c j (Oct.)		1: Recycled	0.1	0.0	0.0				0.0	0.0	0.0			
		(N)	(1)	(0)	(0)				(0)	(0)	(0)			
		2: Disp'l Colltn Site	0.1	0.0	0.0				0.0	0.0	0.0			
		(N)	(1)	(0)	(0)				(0)	(0)	(0)			
		3: Dump on ground	0.1	2.0	2.0				0.3	0.0	0.7			
		(N)	(1)	(3)	(2)				(2)	(0)	(1)			
		4: Sewer, Drain	0.1	0.0	0.0				0.0	0.0	0.0			
		(N)	(1)	(0)	(0)				(0)	(0)	(0)			
		5: Garbage, Landfill	0.3	0.0	2.0				0.0	0.0	0.0			
		(N)	(2)	(0)	(2)				(0)	(0)	(0)			
		6: Other	0.3	0.0	0.0				0.0	0.0	0.7			
		(N)	(2)	(0)	(0)				(0)	(0)	(1)			
		8: Don't know, no answer	0.1	0.0	0.0				0.0	0.0	0.0			
		(N)	(1)	(0)	(0)				(0)	(0)	(0)			
Q.9c j (July) Q.9b j (Oct.)		Mean # of containers disposed, for disposers who reported quantities	1.17	2.00	1.00				2.50	0.0	1.50			
		(N for disposers)	(6)	(3)	(3)				(2)	(0)	(2)			

(Table C.9 continued)

TABLE C.9--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.9a k	ANTIFR'ZE	No, none disposed of	96.3	98.7	100.0				97.4	97.3	95.2			
		(N)	(676)	(149)	(93)				(703)	(142)	(140)			
		Yes, some disposed of	3.7	1.3	0.0	-	-	-	2.6	2.7	4.8[a]	-	-	-
		(N)	(26)	(2)	(0)				(19)	(4)	(7)			
Q.9b k (July) Q.9c k (Oct.)		1: Recycled	0.3	0.7	0.0				0.1	0.0	0.7			
		(N)	(2)	(1)	(0)				(1)	(0)	(1)			
		2: Disp'l Colltn Site	0.0	0.0	0.0				0.3	0.0	0.7			
		(N)	(0)	(0)	(0)				(2)	(0)	(1)			
		3: Dump on ground	1.0	0.0	0.0				0.4	0.7	0.0			
		(N)	(7)	(0)	(0)				(3)	(1)	(2)			
		4: Sewer, Drain	0.4	0.0	0.0				0.4	0.7	0.7			
		(N)	(3)	(0)	(0)				(3)	(1)	(1)			
		5: Garbage, Landfill	1.1	0.7	0.0				1.2	1.4	0.0			
		(N)	(8)	(1)	(0)				(9)	(2)	(0)			
		6: Other	0.3	0.0	0.0				0.0	0.0	0.7			
		(N)	(2)	(0)	(0)				(0)	(0)	(1)			
		8: Don't know, no answer	0.6	0.0	0.0				0.1	0.0	0.7			
		(N)	(4)	(0)	(0)				(1)	(0)	(1)			
Q.9c k (July) Q.9b k (Oct.)		Mean # of containers disposed, for disposers who reported quantities	2.95	3.00	0.0				1.35	3.50	2.50			
		(N for disposers)	(22)	(2)	(0)				(17)	(4)	(4)			
		Mean # of containers, dropping case with highest value	2.14											
		(N)	(21)											

(Table C.9 continued)

TABLE C.9--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.9a 1	BATTERIES	No, none disposed of	98.0	95.4	91.6				97.9	98.7	87.4			
		(N)	(685)	(144)	(87)				(712)	(147)	(125)			
		Yes, some disposed of	2.0	4.6	8.4	-	-	-	2.1	1.3	12.6	-	**	**
		(N)	(14)	(7)	(8)				(15)	(2)	(18)			
Q.9b 1 (July) Q.9c 1 (Oct.)		1: Recycled	1.0	2.0	2.1				0.6	0.0	4.9			
		(N)	(7)	(3)	(2)				(4)	(0)	(7)			
		2: Disp'l Colltn Site	0.0	1.3	2.1				0.1	0.0	3.5			
		(N)	(0)	(2)	(2)				(1)	(0)	(5)			
		3: Dump on ground	0.0	0.0	0.0				0.0	0.0	0.0			
		(N)	(0)	(0)	(0)				(0)	(0)	(0)			
		4: Sewer, Drain	0.0	0.0	0.0				0.0	0.0	0.0			
		(N)	(0)	(0)	(0)				(0)	(0)	(0)			
		5: Garbage, Landfill	0.4	1.3	1.1				0.7	0.7	0.7			
		(N)	(3)	(2)	(1)				(5)	(1)	(1)			
		6: Other	0.4	0.0	3.2				0.7	0.7	3.5			
		(N)	(3)	(0)	(3)				(5)	(1)	(5)			
		8: Don't know, no answer	0.1	0.0	0.0				0.0	0.0	0.7			
		(N)	(1)	(0)	(0)				(0)	(0)	(1)			
Q.9c 1 (July) Q.9b 1 (Oct.)		Mean # of containers disposed, for disposers who reported quantities	2.08	2.29	2.75				2.00	13.50	5.69			
		(N)	(13)	(7)	(8)				(15)	(2)	(16)			
		Mean # of containers, dropping case with highest value	1.17	2.00	2.29				1.07	2.00	4.07			
		(N)	(12)	(6)	(7)				(14)	(1)	(15)			

TABLE C.10. Reported Change in Dipsosal Habits (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.10a	CHANGED?	Has the Way You Dispose of Hazardous Household Products Changed...?" ("Don't know" and missing data excluded.)												
		Remained the same	91.9	94.0	93.9				89.8	91.3	87.6			
		(N)	(651)	(142)	(92)				(657)	(137)	(134)			
		Changed	8.1	6.0	6.1	-	-	-	10.2	8.7	12.4	-	-	-
		(N)	(57)	(9)	(6)				(75)	(13)	(19)			
Q.10b	HOW CHANGED?	How Has It Changed? (Asked only of those who said they changed. Respondents could give more than one answer. Percentages based on total sample.)												
		Now recycles more	1.4	0.7	1.0	-		-	1.2	0.7	3.3	-	-	-
		(N)	(10)	(1)	(1)				(9)	(1)	(5)			
		Now gives to collection center more	0.4	0.7	0.0				2.5^{b}	0.0	3.3	*	*	-
		(N)	(3)	(1)	(0)				(18)	(0)	(5)			
		Now keeps it more, stores it	0.0	0.7	0.0				0.3	1.3	0.0			
		(N)	(0)	(1)	(0)				(2)	(2)	(0)			
		Now uses it up	1.0	0.7	2.0			-	1.4	0.0	0.7	-	-	
		(N)	(7)	(1)	(2)				(10)	(0)	(1)			
		Now follows proper disposal instructions, are more careful	3.5	3.3	5.1	-		-	4.1	4.7	6.5	-	-	-
		(N)	(25)	(5)	(5)				(30)	(7)	(10)			
		Other	2.4	1.3	2.0	-		-	2.2	3.3	0.7	-	-	-
		(N)	(17)	(2)	(2)				(16)	(5)	(1)			

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[b] Figure in Column f shows a significant change from July survey at .01 level or less.

TABLE C.11. Accidents (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.11a	ACCIDENTS	Ever Any Accidents with Injuries Due to Hazardous Materials?												
		Yes	2.1	0.7	4.1	-	-	-	3.4	4.0	5.2	-	-	-
		(N)	(17)	(1)	(4)				(25)	(6)	(8)			
Q.11b	MEDICAL	Was Medical Attention Required?												
		Yes	0.6	0.7	4.1	-	-	-	2.0	2.7	3.3	-	-	-
		(N)	(4)	(1)	(4)				(15)	(4)	(5)			

TABLE C.12, 13, 14. Buying Habits (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.12	BUY WARNING LABELS	Do You Try to Find Those With Warning Labels? (Missing data and "don't know" excluded.)												
		Yes	66.3	72.7	66.3	-	-	-	62.7	74.5	62.7	**	*	-
		No	32.2	26.0	30.6				35.9	24.8	36.0			
		Depends	1.4	1.3	3.1				1.4	0.7	1.3			
			99.9	100.0	100.0				100.0	100.0	100.0			
Q.13	BUY SUBSTITUTES	Do You Try to Buy Less Harmful Substitutes? (Missing data and "don't know" excluded.)												
		Yes	64.8	56.3	63.5	-	-	-	62.0	54.1	60.0	-	-	-
		No	30.3	38.2	34.4				33.4	40.4	36.0			
		Depends	4.9	5.6	2.1				4.6	5.5	4.0			
			100.0	100.1	100.0				100.0	100.0	100.0			
Q.14	BUY NEW	Are You Usually First to Buy New Products? (Missing data and "don't know" excluded.)												
		Yes, among the first	12.0	10.2	13.5	-	-	-	12.1	14.5	8.6	-	-	-
		No, wait to see what others think	74.4	78.2	74.0				65.6	62.8	73.5			
		Depends	13.6	11.6	12.5				11.6	8.3	9.9			
		Don't buy new products	0.0	0.0	0.0				10.7	14.5	7.9			
			100.0	100.0	100.0				100.0	100.1	99.9			

TABLE C.15. Attitudes on Use and Disposal (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.15	ATTITUDES	On a "Strongly Agree" to "Strongly Disagree" Scale. (Except for "Don't know" row, all percentages based on total sample minus missing data and "don't know." Percentage for "don't know" based on total sample minus missing data.)												
a	LABELS	Manufacturers Should Provide Warning Labels												
		1: Strongly agree	70.6	63.6	61.9				74.3	74.0	63.8			
		2: Agree	29.0	35.1	37.1				25.6	26.0	36.2			
		3: Disagree	0.4	1.3	1.0				0.1	0.0	0.0			
		4: Strongly disagree	0.0	0.0	0.0				0.0	0.0	0.0			
		Totals	100.0	100.0	100.0				100.0	100.0	100.0			
		Mean of 1,2,3,4	1.30	1.30	1.39	-	-	-	1.26	1.26[a]	1.36	-	-	*
		8: Don't know	0.0	0.0	1.0				0.0	0.0	0.7			
b	USE LATER	People Should Store, Use Extra Hazardous Products Later												
		1: Strongly agree	12.1	10.2	7.7				13.0	21.9	7.9			
		2: Agree	61.4	59.9	69.2				58.4	48.6	68.3			
		3: Disagree	20.3	22.4	17.6				23.0	26.0	20.9			
		4: Strongly disagree	6.2	7.5	5.5				5.6	3.4	2.9			
		Totals	100.0	100.0	100.0				100.0	99.9	100.0			
		Mean of 1,2,3,4	2.21	2.27	2.21	-	-	-	2.21	2.11	2.19	-	-	-
		8: Don't know	4.1	2.6	7.1				4.6	2.7	8.5			

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[a] Figure in Column f shows a significant change from July survey at .05 level or less.

(Table C.15 continued)

TABLE C.15--Continued.

(a) Question Number	(b) Variable Name	(c) Description	July 1987 Survey: (d) Descriptive Statistics by Sample (1) CUF	(2) Decatur	(3) Farm	(e) T-Tests of Differences between Samples (1:2)	(2:3)	(1:3)	October 1987 Survey: (f) Descriptive Statistics by Sample (1) CUF	(2) Decatur	(3) Farm	(g) T-Tests of Differences between Samples (1:2)	(2:3)	(1:3)
c	SEWER LAW	A Law Against Disposal of HHW in Sewers or on the Ground												
		1: Strongly agree	43.5	38.7	40.0				54.8	50.0	38.2			
		2: Agree	49.9	56.3	53.7				40.5	41.2	54.9			
		3: Disagree	6.1	4.2	6.3				4.5	6.8	4.9			
		4: Strongly disagree	0.6	0.7	0.0				0.3	2.0	2.1			
		Totals	100.1	99.9	100.0				100.1	100.0	100.1			
		Mean of 1,2,3,4	1.64	1.67	1.66	-	-	-	1.50[b]	1.61	1.71	-	-	**
		8: Don't know	2.8	6.0	3.1				2.5	1.3	5.9			
d	GOV'T ALTERNATIVES	Government Should Promote Nonhazardous Alternatives												
		1: Strongly agree	36.6	25.7	27.8				40.9	46.9	38.2			
		2: Agree	54.0	68.2	65.6				51.5	49.7	54.9			
		3: Disagree	8.2	4.1	4.4				6.7	3.4	4.9			
		4: Strongly disagree	1.2	2.0	2.2				0.8	0.0	2.1			
		Totals	100.0	100.0	100.0				99.9	100.0	100.1			
		Mean of 1,2,3,4	1.74	1.82	1.81	-	-	-	1.67	1.57[b]	1.93	-	**	**
		8: Don't know	2.8	2.0	8.2				2.5	1.3	5.9			

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[b] Figure in Column f shows a significant change from July survey at .01 level or less.

(Table C.15 continued)

TABLE C.15--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
•	LANDFILL OK FOR HHW	Allow All HHW in Garbage Landfill												
		1: Strongly agree	5.6	4.5	1.2				6.0	10.8	3.0			
		2: Agree	29.8	39.8	37.6				24.4	36.0	23.7			
		3: Disagree	45.6	43.9	44.7				46.0	43.9	48.9			
		4: Strongly disagree	19.0	12.8	16.5				23.5	9.4	24.4			
		Totals	100.0	100.0	100.0				99.9	100.1	100.0			
		Mean of 1,2,3,4	2.78	2.64	2.77	-	-	-	2.87[a]	2.52	2.95	**	**	-
		8: Don't know	7.1	11.9	13.3				7.4	7.3	11.8			

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[a] Figure in Column f shows a significant change from July survey at .05 level or less.

TABLE C.16. Program Preferences (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.16a	PROGRAM	Which Program Would You Prefer? (Missing data and "don't know" excluded.)												
		Collection site for drop off	40.2	34.5	67.7	-	**	**	48.8[b]	42.2	76.9	-	**	**
		Curbside pickup	58.8	63.4	32.3				50.6	56.5	20.4			
		Neither	1.0	2.1	0.0				0.6	1.4	2.7			
		Totals	100.0	100.0	100.0				100.0	100.1	100.0			
b	SITE OPEN	How Often Should the Site Be Open? (Percentages based on those who prefer a collection site. Missing data and "don't know" excluded.)												
		One or two days each year	4.1	10.2	10.3	-	-	-	9.3[b]	9.5	27.0[b]	-	**	**
		Monthly or more	95.9	89.8	89.7				90.7	90.5	73.0			
		Totals	100.0	100.0	100.0				100.0	100.0	100.0			
c	PICKUP FREQ'NCY	How Often Should There Be Curbside Pickup? (Percentages based on those who prefer curbside pickup. Missing data and "don't know" excluded.)												
		One or two days each year	19.8	30.6	29.6	*	-	-	25.4	27.5	51.7	-	*	**
		Monthly or more	80.2	69.7	70.4				74.6	72.5	48.3			
		Totals	100.0	100.0	100.0				100.0	100.0	100.0			

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[b] Figure in Column f shows a significant change from July survey at .01 level or less.

(Table C.16 continued)

TABLE C.16--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
d	HOW PAY	How Should a Special Collection Program Be Paid For? (Missing data and "don't know" excluded from all but "don't know" row.)												
		Sales tax on hazardous products	47.7	40.5	38.5	-	-	-	49.2	39.1	40.3	*	-	-
		General sales tax revenue	10.3	9.5	10.3	-	-	-	11.0	13.3	11.6	-	-	-
		General local tax revenue	13.3	8.7	6.4	-	-	*	12.9	7.8	9.3	-	-	-
		Garbage truck fees at landfill	21.3	33.3	41.0	**	-	**	21.2	36.7	25.6[b]	**	-	-
		Other	7.4	8.0	3.9				5.7	3.1	13.2[b]			
		Totals	100.0	100.0	100.1				100.0	100.0	100.0			
		Don't know	12.1	16.0	20.4				9.8	14.7	15.7			

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[b] Figure in Column f shows a significant change from July survey at .01 level or less.

TABLE C.17. Prospective Participation (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.18 (Oct.)	PARTICIPATE ON SEPT. 13	Did You Participate in the September 13 Collection? (Asked in October survey only. "Not applicable" includes those not asked the question because they answered "No" to Q.17a of the October survey--see Table C.18.)												
		Yes							2.5	0.0	9.9	**	**	*
		No, or not applicable							97.5	100.0	90.1			
		Totals							100.0	100.0	100.0			
Q.17a (July) Q.19a (Oct.)	PARTICI- PATION	Would You Participate in an HHW Collection Day? (Missing data and "don't know" excluded from all but "don't know" row.)												
		Yes	85.8	84.5	86.2	-	-	-	85.7	86.7	89.9	-	-	-
		No	14.2	15.5	13.8				14.3	13.3	10.1			
		Totals	100.0	100.0	100.0				100.0	100.0	100.0			
		Don't know	5.5	6.0	4.1				3.5	4.7	3.3			

(Table C.17 continued)

TABLE C.17--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.17b (July) Q.19b (Oct.)	MILES	How Many Miles Would You Travel To HHW Collection Site? ("Don't know" and "does not drive" excluded from all but "don't know" and "does not drive" rows.)												
		Zero miles (and would not participate: Q.17a)	19.3	22.4	19.1				17.8	17.5	10.7			
		1-4 miles	18.3	17.2	8.9				17.5	18.2	6.0			
		5 miles	26.7	29.9	9.0				29.1	32.2	10.1			
		6-10 miles	23.0	23.8	26.9				23.6	26.6	26.2			
		11-15 miles	5.6	3.0	15.7				6.1	2.8	16.8			
		16-30 miles	6.0	6.0	18.0				5.1	2.1	28.2			
		More than 30 miles	1.2	0.7	2.2				0.7	0.7	2.0			
		Totals	100.0	100.0	99.8				99.9	100.1	100.0			
		Median, based on full distribution	4.96	4.85	9.96				5.01	4.94	10.36			
		Mean, full distribution	6.84	6.28	11.37	-	*	**	6.65	5.90	12.80	-	**	**
		Mean, excluding cases with values over 30 or under one	7.78	7.27	13.03	-	-	**	7.59	7.03	14.80	-	*	**
		Does not drive	2.4	2.0	0.0				1.9	1.3	0.0			
		Don't know	4.2	9.3	9.2				4.5	3.3	2.6			

(Table C.17 continued)

TABLE C.17--Continued.

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.17c (July)	AG WASTE	Would You Bring Agricultural Waste? (Farmers only. Asked in July survey only. "Don't know" included; missing data (one case) excluded.)												
		Yes			43.3									
		No			34.0									
		Would not participate: Q.17a			13.4									
		Don't know			9.3									
		Total			100.0									

TABLE C.18. Heard About HHW Collection Day (Percents)

(a) Question Number (Answer Code)	(b) Variable Name	(c) Description	July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
			(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.18a (July) Q.17a (Oct.)	HEARD OF DAY	Heard Anything About HHW Collection Day?												
		Yes, heard of day	3.2	.7	9.2	**	**	**	44.3[b]	10.7[b]	71.2[b]	**	**	**
Q.18b (July) Q.17b (Oct.)	HOW HEARD	How Did You Hear About It?												
(01)	BROCHURE	% of total sample	0.0	0.0	0.0				0.8	0.0	0.7	-		
		% of "yes"	0.0	0.0	0.0				1.8	0.0	0.9			
(02)	POSTER	% of total sample	0.0	0.0	0.0				0.4	0.0	0.0			
		% of "yes"	0.0	0.0	0.0				0.9	0.0	0.0			
(03)	FLYER	% of total sample	0.0	0.0	0.0				9.1[b]	0.7	8.5[b]	**	**	
		% of "yes"	0.0	0.0	0.0				20.6	6.3	11.9			
(04)	NEIGHBOR	% of total sample	0.0	0.0	1.0				1.4[b]	0.0	1.3			
		% of "yes"	0.0	0.0	11.1				3.1	0.0	1.8	-		
(05)	FAMILY	% of total sample	0.1	0.0	0.0				0.5	0.0	1.3			
		% of "yes"	4.5	0.0	0.0				1.2	0.0	1.8			
(06)	WORK	% of total sample	0.4	0.0	0.0				1.2	0.0	1.3			
		% of "yes"	13.6	0.0	0.0				2.8	0.0	1.8			
(07)	CLUB	% of total sample	0.0	0.0	0.0				0.0	0.0	0.7			
		% of "yes"	0.0	0.0	0.0				0.0	0.0	0.9			

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[b] Figure in Column f shows a significant change from July survey at .01 level or less.

(Table C.18 continued)

TABLE C.18--Continued.

(a) Question Number (Answer Code)	(b) Variable Name	(c) Description	July 1987 Survey: (d) Descriptive Statistics by Sample (1) CUF	(2) Decatur	(3) Farm	(e) T-Tests of Differences between Samples (1:2)	(2:3)	(1:3)	October 1987 Survey: (f) Descriptive Statistics by Sample (1) CUF	(2) Decatur	(3) Farm	(g) T-Tests of Differences between Samples (1:2)	(2:3)	(1:3)
(08)	CHURCH	% of total sample	0.0	0.0	0.0				0.1	0.0	0.0			
		% of "yes"	0.0	0.0	0.0				0.3	0.0	0.0			
(09)	FARM BUREAU	% of total sample	0.1	0.0	3.1				0.3	0.0	25.5^b			
		% of "yes"	4.5	0.0	33.3				0.6	0.0	35.8		**	**
(10)	SCHOOL	% of total sample	0.0	0.0	0.0				0.0	0.0	0.0			
(11)	LIBRARY	% of total sample	0.0	0.0	0.0				0.0	0.0	0.0			
(12)	NEWSPAPER	% of total sample	2.0	0.7	3.1				23.6^b	2.0	35.9^b	**	**	**
		% of "yes"	63.6	100.0	33.3				53.2	18.8	50.5			
(13)	RADIO	% of total sample	0.8	0.0	0.0				8.9^b	2.0	19.0^b	**	**	**
		% of "yes"	27.3	0.0	0.0				20.0	18.8	26.6			
(14)	TV	% of total sample	0.1	0.0	1.0				16.2^b	6.7^b	22.2^b	**	**	-
		% of "yes"	4.5	0.0	11.1				36.6	62.5	31.2			
(15)	MAGAZINE	% of total sample	0.0	0.0	0.0				0.1	0.0	5.9^a		**	**
		% of "yes"	0.0	0.0	0.0				0.3	0.0	8.3			
(16)	MALL	% of total sample	0.0	0.0	0.0				0.1	0.0	0.0			
		% of "yes"	0.0	0.0	0.0				0.3	0.0	0.0			
(17)	FAIR	% of total sample	0.0	0.0	0.0				0.0	0.0	0.0			
(18)	OTHER	% of total sample	0.0	0.0	0.0				1.2^b	0.0	4.6^a	-	**	-
		% of "yes"	0.0	0.0	0.0				2.8	0.0	6.4			
(98)	DON'T KNOW	% of total sample	0.0	0.0	1.0				1.1^b	1.3	0.7	-		
		% of "yes"	0.0	0.0	11.1				2.5	12.5	0.9			

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[a] Figure in Column f shows a significant change from July survey at .05 level or less.

[b] Figure in Column f shows a significant change from July survey at .01 level or less.

TABLE C.19. Main Local News Source (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.19 (July) Q.21 (Oct.)	SOURCE	What Is Your Main Source of Local News?												
		Newspaper	50.4	55.8	61.2	-	-	*	53.4	50.0	63.8	-	*	*
		Radio	9.3	7.5	6.1	-	-	-	10.3	10.8	9.9	-	-	-
		Television	35.6	34.0	24.5	-	-	-	33.3	37.2	22.4	-	**	**
		All other	3.3	0.7	3.1	-		-	2.6	1.4	3.3	-	-	-
		None	1.4	2.0	2.0	-		-	0.4	0.7	0.7			
		Totals	100.0	100.0	99.9				100.0	100.1	100.1			

TABLE C.20. Favorite TV Station for Local News (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.20 (July) Q.22 (Oct.)	TV STATION	What One Television Station Do You Watch Most Often for Local News?												
		Ch 3 WCIA CBS	74.7	30.6	93.8	**	**	**	69.3[a]	29.7	88.7	**	**	**
		Ch 12 WILL PBS	1.3	0.0	0.0	-		-	2.1	0.7	0.0	-		-
		Ch 15 WICD NBC	14.0	0.0	4.2	**	*	**	14.4	0.7	7.3	**	**	**
		Ch 17 WAND ABC	2.1	61.9	0.0	**	**	-	5.7[b]	63.9	0.7	**	**	**
		Other channels	0.6	4.8	0.0				0.4	2.7	0.0			
		None	7.3	2.7	2.1	**	-	**	8.1	2.7	3.3	**		**
		Totals	100.0	100.0	100.1				100.0	100.0	100.0			

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[a] Figure in Column f shows a significant change from July survey at .05 level or less.

[b] Figure in Column f shows a significant change from July survey at .01 level or less.

TABLE C.21. Favorite Local Radio Station (Percents)

(a) Question Number	(b) Variable Name	(c) Description	July 1987 Survey (d) Descriptive Statistics by Sample (1) CUF	(2) Decatur	(3) Farm	(e) T-Tests of Differences between Samples (1:2)	(2:3)	(1:3)	October 1987 Survey (f) Descriptive Statistics by Sample (1) CUF	(2) Decatur	(3) Farm	(g) T-Tests of Differences between Samples (1:2)	(2:3)	(1:3)
Q.21 (July) Q.23 (Oct.)	RADIO STN	Which One Local Radio Station Do You Listen To Most Often? (Missing data and "don't know" excluded.)												
		WBGL FM (91.7)	3.0	0.0	1.1	-		-	1.8	0.7	2.7	-		-
		WDWS FM (97.5)	7.0	0.0	8.5	**	**	-	6.6	0.0	9.6	**	**	-
		WEFT FM (90.1)	0.9	0.0	0.0	-		-	1.8	0.7	0.0	-		-
		WILL FM (90.9)	5.4	1.4	2.1	**	-	-	6.9	0.7	2.1	**		**
		WKIO FM (103.9)	8.7	0.0	1.1	**	-	**	10.9	0.0	.7	**		**
		WLRW FM (94.5)	23.3	2.1	12.8	**	**	**	23.9	4.0	6.8	**	-	**
		WPGU FM (107.1)	10.6	0.0	1.1	**	**	**	11.7	0.7	0.0	**	-	**
		WSOY FM (102.9)	0.0	30.6	0.0	**	**		0.1	39.7	0.0	**	**	
		WDWS AM (1400)	15.4	0.0	38.3	**	**	**	14.0	0.7	41.1	**	**	**
		WILL AM (580)	8.7	0.0	2.1	**	-	**	6.3	0.7	2.7	**		*
		WJTX AM (1580)	1.0	0.0	0.0	-		-	0.6	0.0	0.0			
		WSOY AM (1340)	0.0	31.3	0.0	**	**		0.0	26.0	0.0	**	**	
		All other stations	4.3	20.8	26.6	**	-	**	4.9	15.1	23.3	*	*	**
		None	11.7	13.9	6.4	-	-	-	10.5	11.0	11.0	-	-	-
		Totals	100.0	100.1	100.1				100.0	100.0	100.0			
		Don't know	2.7	4.6	4.1				2.6	2.7	4.6			

TABLE C.22. Reading Local Newspapers (Percents)

			July 1987 Survey						October 1987 Survey					
(a) Question Number (Answer Code)	(b) Variable Name	(c) Description	(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
			(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.22 (July) Q.24 (Oct.)	LOCAL PAPERS	What Newspapers Do You Read That Carry Local News? (Multiple answers permitted.)												
(1)	D ILLINI	UI Daily Illini	15.5	0.0	1.0	**		**	22.1^a	0.0	0.0	**		**
(2)	N-GAZETTE	CU News-Gazette	82.8	0.0	87.8	**	**	-	80.5	0.7	94.1^a	**	**	**
(3)	HERALD	Decatur Herald Review	0.3	94.0	0.0	**	**		0.0	86.7^a	0.0	**	**	
(4)	RNTL PRESS	Rantoul Press	0.0	0.0	13.3		**	**	0.1	0.0	7.8		**	**
(5)	OTHER	Other newspapers	1.0	5.3	21.4	*	**	**	0.8	11.3^a	19.0	**	**	**
(6)	NO NEWS	No newspapers	9.3	6.0	3.1	-	-	**	6.8	12.0	1.3	*	**	*

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[a] Figure in Column f shows a significant change from July survey at .05 level or less.

TABLE C.23. Attending to Information (Percents)

(a) Question Number	(b) Variable Name	(c) Description	July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
			(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.23 (July) Q.25 (Oct.)	ATTENTION	Pays Attention To What Types of Information?												
a	KINDS HAZ	The Kinds of Products That Are Hazardous												
		Yes, pays attention	55.8	58.5	73.2	-	*	**	72.4[b]	75.8[b]	75.0	-	-	-
b	USE HAZ	How To Use and Store Hazardous Products												
		Yes, pays attention	74.6	76.8	88.7	-	*	**	85.9[b]	88.7[b]	85.0	-	-	-
c	DANGERS	Dangers with Hazardous Products												
		Yes, pays attention	83.9	83.2	97.9	-	**	**	89.5[b]	89.3	91.5[a]	-	-	-
d	DISPOSAL	How To Dispose of Hazardous Waste												
		Yes, pays attention	69.4	77.9	89.4	-	*	**	75.8[b]	78.0	88.4	-	*	*
e	NONHAZ	Nonhazardous Alternatives												
		Yes, pays attention	59.2	59.5	75.0	-	*	**	64.4[a]	63.9	71.8	-	-	-

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[a] Figure in Column f shows a significant change from July survey at .05 level or less.

[b] Figure in Column f shows a significant change from July survey at .01 level or less.

TABLE C.24. Participation in Recycling (Percents)

(a) Question Number	(b) Variable Name	(c) Description	July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
			(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.24 (July) Q.26 (Oct.)	RECYCLING	Extent of Recycling Cans, Bottles, and Newspapers												
		1: Recycles all of them	18.7	4.0	10.2				13.9	7.3	11.1			
		2: Recycles most	14.7	6.6	21.4				14.6	8.7	19.0			
		3: Recycles some	29.3	27.2	29.6				27.2	17.3	38.6			
		4: Never recycles	37.3	62.3	38.8				44.3	66.7	31.4			
		Totals	100.0	100.1	100.0				100.0	100.0	100.1			
		Means 1,2,3,4	2.85	3.48	2.97	**	**	-	3.02[b]	3.43	2.90	**	**	-

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[b] Figure in Column f shows a significant change from July survey at .01 level or less.

TABLE C.25. Availability of Curbside Recycling (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.25 (July) Q.27 (Oct.)	CURBSIDE	Self-Report of Availability of Curbside Recycling ("Don't know" included in base.)												
		Saying they live in neighborhood with curbside recycling	41.8	3.3	9.2	**	-	**	34.3[a]	4.0	10.5	**	*	**
		Saying they don't	51.4	92.7	88.8				53.8	90.7	83.0			
		Don't know	6.8	4.0	2.0				11.9	5.3	6.6			
		Totals	100.0	100.0	100.0				100.0	100.0	100.1			

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[a] Figure in Column f shows a significant change from July survey at .05 level or less.

TABLE C.26, 27. Location of Residence in Champaign-Urbana (Percents)

(a) Question Number	(b) Variable Name	(c) Description	(d) Descriptive Statistics of Samples	
			July 1987 Survey	October 1987 Survey
Q.26 (July) Q.28 (Oct.)	UNIV AVE	Live North or South of University Avenue?		
Q.27a (July) Q.29a (Oct.)	PROSPECT	Live East or West of Prospect Avenue?		
b	VINE ST	Live East or West of Vine/Cunningham?		
	NE CHAMPAIGN	N. of University Ave., E. of Prospect Ave.	8.5	7.8
		(N)	(60)	(57)
	NW CHAMPAIGN	N. of University Ave., W. of Prospect Ave.	10.9	11.6
		(N)	(77)	(85)
	SE CHAMPAIGN	S. of University Ave., E. of Prospect Ave.	17.8	17.8
		(N)	(126)	(131)
	SW CHAMPAIGN	S. of University Ave., W. of Prospect Ave.	19.5	21.7
		(N)	(138)	(159)
	NE URBANA	N. of University Ave., E. of Vine/C'ham Ave.	4.5	4.4
		(N)	(32)	(60)
	NW URBANA	N. of University Ave., W. of Vine/C'ham Ave.	3.8	2.9
		(N)	(27)	(21)
	SE URBANA	S. of University Ave., E. of Vine/C'ham Ave.	16.1	12.1
		(N)	(114)	(89)
	SW URBANA	S. of University Ave., W. of Vine/C'ham Ave.	11.0	10.1
		(N)	(78)	(74)
	FRINGE	Immediate urbanized fringe around C/U, including Savoy	5.5	7.6
		(N)	(39)	(56)
	UNCLASSIFIED	Not classified due to missing data, "don't know," and conflicting answers	2.5	2.5
		(N)	(18)	(18)
		Total	100.1	100.0
		(N)	(709)	(734)

TABLE C.28. Type of Housing (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.28 (July) Q.30 (Oct.)	HOUSING													
		Single family house	56.3	81.5	92.9	**	**	**	52.7	82.7	98.0	**	**	**
		Duplex, two-flat	6.5	4.0	4.1	-	-	-	6.0	1.3	2.0	**	-	**
		Apartment, townhouse	31.7	10.6	1.0	**	**	**	36.5	11.3	0.0	**	**	**
		Trailer, mobile home	4.7	4.0	2.0	-	-	-	3.3	4.7	0.0	-	**	**
		Something else	0.8	0.0	0.0	-		-	1.5	0.0	0.0	-		-
		Totals	100.0	100.1	100.0				100.0	100.0	100.0			

TABLE C.29. Ownership Status (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.29 (July) Q.31 (Oct.)	OWN/RENT	Do You Own or Rent Your Home?												
		Own	53.7	79.3	85.7	**	-	**	50.0	76.7	79.1	**	-	**
		Rent	45.7	20.7	13.3				49.9	23.3	19.6			
		Other	0.6	0.0	1.0				0.1	0.0	1.3			
		Totals	100.0	100.0	100.0				100.0	100.0	100.0			

TABLE C-30. Household Size and Composition (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.30a	HHLD SIZE	Household Size												
(July)		One person	24.6	24.0	10.2				22.9	16.7	5.3			
Q.32a		Two person	38.6	34.7	39.8				37.2	37.3	49.3			
(Oct.)		3-4 people	28.4	35.3	38.8				33.2	32.7	39.5			
		5 or more	8.5	6.0	11.2				6.7	13.3	5.9			
		Totals	100.1	100.0	100.0				100.0	100.0	100.0			
		Mean of full distribution	2.46	2.49	2.91	-	*	**	2.65	2.78	2.71	-	-	-
		Mean of full distribution, less two highest cases							2.50					
Q.30b	ELDERLY	Number of Persons Aged 65 or Over in Household												
(July)		None	85.5	70.9	74.5				88.4	78.0	78.3			
Q.32b		One person	9.4	17.2	10.2				5.7	14.0	11.2			
(Oct.)		2 or more	5.1	11.9	15.3				5.9	8.0	10.6			
		Totals	100.0	100.0	100.0				99.9	100.0	100.1			
		Mean of full distribution	.199	.393	.437	**	-	*	.175	.300	.329	*	-	**
Q.30c	SCHOOL	Number of Children Aged 5-17 in Household												
(July)		None	75.9	74.9	67.3				76.8	62.7	75.8			
Q.32c		One	14.2	9.3	10.2				12.0	15.3	11.1			
(Oct.)		2 or more	9.9	15.9	22.4				11.2	22.0	13.1			
		Totals	100.0	100.0	100.0				100.0	100.0	100.0			
		Mean of full distribution	.378	.433	.612	-	-	*	.403	.707[a]	.418	**	*	-

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[a] Figure in Column f shows a significant change from July survey at .05 level or less.

TABLE C.31. Educational Attainment of Respondent (Percents)

(a) Question Number	(b) Variable Name	(c) Description	July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
			(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.31 (July) Q.33 (Oct.)	EDUCATION	Highest Grade or Year of School Completed by Respondent												
		Less than high school grad	6.5	13.3	14.3				6.1	15.3	9.2			
		High school grad	21.6	36.7	49.0				19.9	36.7	54.6			
		Some college	25.0	22.0	20.4				26.0	26.7	17.8			
		4-yr college grad	21.7	18.7	12.2				22.8	14.0	13.2			
		Graduate school	25.2	9.3	4.1				25.2	7.3	5.2			
		Totals	100.0	100.0	100.0				100.0	100.0	100.0			
		Mean # years of education	14.6	13.4	12.5	**	*	**	14.7	13.0	12.8	**	-	**

TABLE C.32. Age of Respondent (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.32 (July) Q.34 (Oct.)	AGE	Respondent's Age (Age = 1987-Year of birth)												
		Under 20	0.6	1.4	0.0				1.9	0.0	0.0			
		21 - 24	15.8	6.1	3.1				18.8	6.0	0.7			
		25 - 29	16.9	10.1	6.2				17.7	12.0	6.6			
		30 - 34	15.2	9.5	9.3				13.8	16.0	4.6			
		35 - 44	23.3	18.2	17.5				18.4	23.3	20.4			
		45 - 64	15.9	33.8	42.3				19.8	25.3	52.0			
		65 or over	12.1	20.9	21.6				9.5	17.3	15.8			
		Totals	99.8	100.0	100.0				99.9	99.9	100.1			
		Mean age	39.5	48.1	51.4	**	-	**	38.3	45.0	52.0	**	**	**

TABLE C.33. Voter Participation (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.33 (July) Q.25 (Oct.)	VOTER	Normally Vote in Local Elections?												
		Yes	63.8	79.5	94.9	**	**	**	61.1	77.2	94.1	**	**	**
		No	36.2	20.5	5.1				38.9	22.8	5.9			
		Totals	100.0	100.0	100.0				100.0	100.0	100.0			

TABLE C.34. Employment Status of Respondent (Percents)

			July 1987 Survey						October 1987 Survey					
(a) Question Number (Answer Code)	(b) Variable Name	(c) Description	(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
			(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.34a (July) Q.35a (Oct.)	EMPLOYED	Are You Currently...?												
(1)		Employed full time	54.0	45.3	43.9	-	-	-	54.2	53.3	54.9	-	-	-
(2)		Employed part time	16.6	11.3	9.2	-	-	*	18.0	12.7	11.8	-	-	-
(3)		Not employed at all	29.3	43.3	46.9	**	-	**	27.9	34.0	33.3[a]	-	-	-
		Totals	99.9	99.9	100.0				100.1	100.0	100.0			
Q.34b (July) Q.35b (Oct.)	HOW NOT EMPLOYED	(Asked only of those who said they were not employed. Percentages based on total sample. Note that answer codes 4, 5, and 6 provide estimates only for those who are not employed; employed persons with these roles were skipped to the next question.)												
(1)		Retired	8.9	22.0	10.2	**	*	-	7.8	18.0	9.2	**	*	-
(2)		Disabled	1.7	1.3	0.0	-		-	1.1	3.3	0.0	-	-	-
(3)		Temp. unemployed	2.7	3.3	0.0	-	-	-	1.3	1.3	0.7	-		-
(4)		Student	6.9	0.7	0.0	**		**	11.0[b]	0.7	0.0	**		**
(5)		Keeping house	7.6	12.0	34.7	-	**	**	5.4	10.0	18.3[b]	*	*	**
(6)		Not looking for work	1.6	4.0	2.0	-	-	-	1.3	0.7	3.9	-	-	*
		Total not employed	29.4	43.3	46.9				27.9	34.0	32.1			

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[a] Figure in Column f shows a significant change from July survey at .05 level or less.

[b] Figure in Column f shows a significant change from July survey at .01 level or less.

TABLE C.35. Occupation of Respondent (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.35 (July) Q.36 (Oct.)	OCCUPATION	Respondent's Present or Last Occupation (Not asked of those with answer codes 4, 5, or 6 in the previous question. Answers do not apply to others in household. Percentages based on total sample, excluding "don't know" and missing data.)												
		Manager, professional	31.9	31.3	6.1	-	**	**	32.9	27.9	13.1	-	**	**
		Technical, sales, administrative support	26.4	19.3	10.2	-	*	**	25.6	26.5[a]	14.4	-	**	**
		Service occupations, including child care	12.0	7.3	3.1	-	-	**	12.2	10.2	3.9	-	**	**
		Farming	0.4	0.7	40.8		**	**	1.1	1.4	43.8	-	**	**
		Blue collar	12.1	23.3	2.0	**	**	**	8.9	20.4	2.6	**	**	**
		Other, unclassified	1.0	1.3	1.0	-		-	1.0	1.4	0.7	-		-
		No occupation [answer codes 4, 5, 6 in previous question]	16.2	16.7	36.7	-	**	**	18.4	12.2	21.6	*	**	-
		Totals	100.0	99.9	99.9				100.1	100.0	100.1			

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[a] Figure in Column f shows a significant change from July survey at .05 level or less.

TABLE C.36, 37, 38, 39, 40. 1986 Household Income (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.36-40 (July) Q.37-41 (Oct.)	INCOME	During 1986, Was Your Total Household Income...? ("Refused," "don't know," and missing data excluded from all but final row.)												
		Less than $10,000	19.2	11.2	0.0				20.8	5.4	2.9			
		$10,000-$19,999	23.6	22.4	20.0				20.1	24.9	10.5			
		$20,000-$29,999	20.4	20.8	27.1				21.3	22.5	18.1			
		$30,000-$40,000	12.9	24.0	25.7				16.4	24.8	28.6			
		$40,001-$50,000	10.5	10.4	10.4				9.6	12.4	16.2			
		$50,001-$60,000	6.8	4.8	5.7				5.0	3.1	10.5			
		$60,001-$70,000	2.4	1.6	2.9				2.0	3.1	7.6			
		More than $70,000	4.2	4.8	7.1				4.9	3.9	5.7			
		Totals	100.0	100.0	99.9				100.1	100.1	100.1			
		(N)	(619)	(125)	(70)				(658)	(729)	(105)			
		Mean income (in thousands)	27.3	29.5	34.0	-	-	**	27.2	30.1	38.7	-	**	**
		"Refused," "don't know," and missing data	12.7	17.2	28.6				10.4	14.0	31.4			
		(N)	(90)	(26)	(28)				(76)	(21)	(48)			

TABLE C.41. Gender of Respondent (Percents)

			July 1987 Survey						October 1987 Survey					
			(d) Descriptive Statistics by Sample			(e) T-Tests of Differences between Samples			(f) Descriptive Statistics by Sample			(g) T-Tests of Differences between Samples		
(a) Question Number	(b) Variable Name	(c) Description	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)	(1) CUF	(2) Decatur	(3) Farm	(1:2)	(2:3)	(1:3)
Q.41 (July) Q.42 (Oct.)	GENDER	(Not asked of respondent.)												
		Male	43.8	31.1	34.7	**	-	-	43.9	46.0[b]	41.2	-	-	-
		Female	56.2	68.9	65.3				56.1	54.0	58.8			
		Totals	100.0	100.0	100.0				100.0	100.0	100.0			

[b] Figure in Column f shows a significant change from July survey at .01 level or less.

APPENDIX D

MARGINS OF ERROR AND PROCEDURES FOR ESTIMATING HOUSEHOLD POPULATION COUNTS

MARGINS OF ERROR AND PROCEDURES FOR ESTIMATING HOUSEHOLD POPULATION COUNTS

D.1. Margins of Error

Most of the data reported here are sample percentages that stand as estimates of population percentages. There is some random sampling error associated with each percentage estimate (see Section 4.3). The confidence interval is the range around the sample percentage within which the true population percentage will likely fall. The likelihood of the true population percentage falling within this range is determined by selecting a "confidence level," which by convention is often set at 90 percent, 95 percent, or 99 percent (respectively indicating a significance level of $p = .10$, .05, or .01, the probability of the population percentage being outside the range).

The margin of error for a sample percentage is also dependent on the sample size and on the percentage itself. Confidence intervals get wider as the sample size gets smaller, as the sample percentage departs in either direction from 50 percent, and as the confidence level gets larger (or significance level gets smaller).

Table D.1 shows margins of error for selected sample percentages or proportions, for both the 95 percent and the 99 percent confidence levels, and for samples of the sizes obtained for each of the three main samples in the July survey. In addition, the Champaign/Urbana sample has been broken down into the three component subsamples: the City of Champaign, the City of Urbana, and the immediate urbanized fringe. The fringe subsample is too small for much meaningful estimation and must be treated with great caution. Because the October survey has nearly identical sample sizes, the table can be applied to the October survey as well.

Using Table D.1, confidence intervals may be expressed as the obtained sample percentage plus or minus the margin of error. For example, in the July survey it was found that 65 percent of Urbana respondents try to buy less-hazardous substitutes for HHM. The 95 percent confidence interval for this percentage is plus or minus the margin of error of 5.8 percentage points, or between 59.2 percent and 70.8 percent. Put another way, there is a 95 percent probability that somewhere between 59.2 percent and 70.8 percent of all households in Urbana try to buy nonhazardous substitutes. Stated still another way, there is only a 5 percent chance that the true population percentage falls outside this range.

TABLE D.1. Margins of Error for Various Percentage Point Estimates, for all Three Samples and Selected Subsamples: July 1987 Survey[a]

		Sample and Sample Size					
Confidence Level	Obtained Sample Percentage	Champaign/ Urbana 709	City of Champaign 409	City of Urbana 261	Fringe of C/U 39	City of Decatur 151	Champaign Farmers 98
95%							
	2.0% (or 98.0%)	1.0	1.4	1.7	4.4	2.2	2.8
	5.0% (or 95.0%)	1.6	2.1	2.6	6.8	3.5	4.3
	10.0% (or 90.0%)	2.2	2.9	3.6	9.4	4.8	5.9
	20.0% (or 80.0%)	2.9	3.9	4.9	12.6	6.4	7.9
	35.0% (or 65.0%)	3.5	4.6	5.8	15.0	7.6	9.4
	50.0%	3.7	4.8	6.1	15.7	8.0	9.9
99%							
	2.0% (or 98.0%)	1.4	1.8	2.2	5.8	2.9	3.6
	5.0% (or 95.0%)	2.1	2.8	3.5	9.0	4.6	5.7
	10.0% (or 90.0%)	2.9	3.8	4.8	12.4	6.3	7.8
	20.0% (or 80.0%)	3.9	5.1	6.4	16.5	8.4	10.4
	35.0% (or 65.0%)	4.6	6.1	7.6	19.7	10.0	12.4
	50.0%	4.8	6.4	8.0	20.7	10.5	13.0

[a] Margins of error are stated in percentage points.

D.2. Sampling Ratios and the Number of Households Represented by Each Respondent in Each Sample

Some estimates of the number of households in the population having particular traits are reported. These estimates are projections from samples, based on sampling ratios (sample size divided by number of households in the population) and their inverse (population divided by sample size. For the July survey, Table D.2 gives the sampling ratios for each sample, the inverse or number of households in the population "represented" by each respondent, and the number of households in the population "represented" by each tenth of a percentage point in a percentaged distribution of all respondents.

TABLE D.2. Sampling Ratios and Their Inverse, for Each Sample: July 1987 Survey

Category	Champaign/Urbana and Urbanized Fringe	Decatur	Champaign County Farmers
Number of households in:			
Sample	709	151	98
Population[a]	37,895	34,950	1,792
Sampling ratio	.0187	.0043	.0547
Number of households in the population "represented" by each:			
Respondent in the sample	53.5	231.5	18.3
Tenth of a percentage point in the sample	37.9	35.0	1.8

[a] Population household counts were estimated by procedures discussed in Section D.3.

These figures are based on a calculated estimate that there were 37,895 households in CUF on July 1, 1987. For Decatur, the estimated total number of households is 34,950. The estimated number of farming households in Champaign county is 1,792. The next section provides details on how these estimates were determined. These July 1987 population figures were also applied to the October survey for the purpose of making estimates of the number of households having particular traits.

D.3. Procedures for Estimating July 1, 1987, Total Population of Households for Champaign/Urbana, Decatur, and Champaign County Farmers

D.3.1. Champaign/Urbana and Fringe

The U.S. Bureau of the Census (1986) developed and released figures giving July 1, 1984, local population estimates for Champaign and Urbana. The City of Urbana challenged the estimate for Urbana, claiming that they are substantially below the actual population. The City of Champaign accepted the 1980 and 1984 figures for Champaign. We, therefore, take the July 1, 1984, population estimate for Champaign as a consensually valid starting point.

According to the U.S. Census, the City of Champaign grew by 2,090 from 58,267 in April 1, 1980, to 60,357 on July 1, 1984. This is an average annual growth rate of just under 492 persons for the 4.25 years. If this same growth rate is assumed to apply to the three-year period from July 1, 1984, to July 1, 1987, an extra 1,475 persons should be added to give a July 1, 1987, population of 61,832 for the City of Champaign.

Only a portion of this population resided in households at the time of the survey; the remainder resided in "group quarters" (comprised of ten or more unrelated persons) or as inmates of institutions. All of the latter and virtually all of the former were excluded from our sample by design, and none were included in fact. We are, therefore, interested in the population living in households, which was 84.5 percent of the total population of the City of Champaign in the 1980 Census. Applying this percentage to the estimated July 1, 1987, total population of Champaign yields an estimated Champaign population living in households of 52,248 on July 1, 1987.

To transform number of people in households to the number of households, we need a good estimate of the average number of people per household. In the 1980 *Census*, there were 2.31 people per household in Champaign. In our July *1987 sample* data, this ratio was 2.478. This apparent rise in people per household may accurately reflect the local impact of a nationwide increase in average household size during the early 1980's. There is also some known tendency for smaller households to be slightly underrepresented in telephone surveys (Groves and Kahn, 1979:155-61). This suggests that the true 1987 average household size might be somewhere between 2.31 (the 1980 Census figure) and 2.478 (our July 1987 sample figure). We, therefore, used the average of these two figures, or 2.39 to estimate July 1, 1987, people per household in Champaign. Dividing 2.39 into 52,248 (the July 1, 1987, number of people in Champaign households) yields an estimate of 21,861 households in the City of Champaign on July 1, 1987.

As noted earlier, Urbana has challenged the 1984 Urbana population estimates published by the U.S. Bureau of the Census. We, therefore, used a different starting point in order to arrive at an estimate of the number of households in Urbana in July 1987. We started with a good estimate of the ratio of households in Urbana to households in Champaign, and multiplied that ratio by our U.S. Census-based estimate of the number of households in Champaign. It is a reasonably safe assumption, given the sampling and data collection procedures for the CUF survey reported here, that the ratio of Urbana households to Champaign households in the survey (a ratio of 261 to 409, or .63814) has very high validity. Multiplying this ratio by the estimate of the number of households in the City of Champaign on July 1, 1987 (21,861) gives an estimate of 13,950 households in the City of Urbana as of July 1, 1987.

(This Urbana household estimate, when multiplied by the 2.37 persons-per-household assumed from 1980 Census and 1987 sample data to apply to Urbana, and when adjusted to account for the fact that only 78.5 percent of Urbana residents live in households according to the 1980 Census, yields a total July 1, 1987, population estimate for Urbana of 42,473.)

Finally, the July 1, 1987, population of the Champaign/Urbana immediate urbanized fringe was estimated in the same way. The ratio of sample households in the fringe (39) to sample households in Champaign (409) is .09535. Multiplied by the estimated number of households in Champaign (21,861) provides an estimate of 2,084 households in the fringe on July 1, 1987.

(The total July 1, 1987, population estimate for the fringe is 5,624. This is derived from the fringe household estimate, from a sample and Census-based assumed average of 2.68 persons per fringe household, and from a 1980 Census-based assumption that 99.3 percent of fringe residents reside in households.)

In total, then, the estimated number of households for Champaign, Urbana, and their immediate urbanized fringe on July 1, 1987, is 37,895. There is a bit of evidence of convergent validation for this estimate. While our procedures come up with 35,115 households in the Cities of Champaign and Urbana, a separate estimate of 35,811 households in these two cities in 1987 (month unknown) was developed by Marketing Economic Institute, Ltd., for the 1987 edition of Editor and Publisher. The small difference (less than 2 percent) seems due to a lower assumed average household size in the Marketing Economic Institute estimate.

D.3.2. Decatur

The procedures used to estimate Decatur's total number of households in July 1987 were identical to those used for the City of Champaign. Specifically, the U.S. Bureau of the Census (1986) reported a July 1, 1984, population of 91,851, down from 93,939 in the April 1980 Census. Projecting this decline forward gives a July 1987 Decatur population of 90,378. Of these, 97.45 percent (the 1980 percentage) were assumed to live in households, for a total of 88,073 Decatur household residents. Assuming 2.52 persons per household (averaging the 1980 Census figure of 2.55 and the 1987 sample figure of 2.49), gives a total of 34,950 households in Decatur in July 1987.

D.3.3. Champaign County Farm Bureau Farmers

According to the U.S. Census of Agriculture, there were 1,871 farms in Champaign County in 1982 (reported in Champaign County Regional Planning Commission, 1987). Only those agricultural operations having sales of $1,000 or more in 1982 were counted as farms. By this definition, the number of Champaign County farms had been declining at the rate of 31.5 (or less than 2 percent) per year from the 1978 Census of Agriculture to the 1982 Census of Agriculture. (The statewide rate of decline during this period was more than double the Champaign County rate.) Applying the 31.5 farms per year rate of decline through July 1, 1987, gives an estimate of 1,792 Champaign County farms.

The farm sample in the present survey was, of course, taken from a list of 1,270 Champaign County Farm Bureau members. Of the 155 in our sample, only 63.2 percent were found to be in households that actually engage in farming. Applying this percentage to the entire 1,270 on the Farm Bureau list results in an estimate of 803 Farm Bureau farming households. This is only 45 percent of the 1,792 farms in the County, but probably represents the bulk of the larger, more productive farms.

Wherever this report provides a projected count of the number of farm households having a particular trait (or the number of containers possessed or disposed of by these households), it is based on the inclusive definition of the population as consisting of all 1,792 farms in Champaign County, and, therefore, assumes no difference between Farm Bureau farms and non-Farm Bureau farms.

Wherever a more cautious interpretation is wanted, the reader may simply multiply any projected count of the number of farm households having a particular trait (or the number of containers possessed or disposed of by these households) by .45 to get the count among actively farming Champaign County Farm Bureau member households.

Percentages can, of course, apply to either definition of the population, depending on one's assumptions about the differences (or lack thereof) between Farm Bureau farms and non-Farm Bureau farms.

APPENDIX E

ASSUMPTIONS REGARDING AVERAGE CONTAINER SIZE

ASSUMPTIONS REGARDING AVERAGE CONTAINER SIZE

The survey did not ask respondents for container size. To do so would have placed an overwhelming burden on the respondents and would have greatly lengthened the interview.

People in solid waste management typically speak of the volume of waste in terms of cubic yards or tons rather than in terms of household or farm containers. Hazardous waste is more typically described in terms of barrels or gallons, but can also be understood in terms of cubic yards of storage space. For the purpose of relating to these frames of reference, then, it was considered useful to find some way of translating our counts of containers into a measure of volume in terms of cubic yards. The volume estimates that we developed are for noncompacted containers.

Containers of HHM at urban households range from small 2-4 ounce sizes up to gallon sizes or, in a very few instances, even larger containers. Within product types, the range of container sizes is fairly well defined by manufacturer's packaging and marketing conventions. There is, however, some variation in this range between types of materials or products. Given these observations, the principal investigator set as a starting point to define a range of volumes for each of the 12 product or material types in this study. The lower bound of the range for each type of material would be the lowest reasonably conceivable average container size for that type of material, and the higher bound would be the highest reasonably conceivable average container size for that type of material.

Determination of what constitutes the lower and higher reasonably conceivable averages would depend on actual measurements taken of lines of products available in supermarkets, hardware stores, department stores, gardening shops, and auto and paint stores. Measurements of the smaller containers would constitute the lower bound, and the mid-point between measurements of the smaller containers and measurements of the larger containers would constitute the higher bound. Measurements were to be taken in inches around the outside of a box-like dimensioning of the container, such that round containers were treated as if they were in a tight fitting conventional square box and as if it were the box that was being measured.

In Table E.1, a list of volumes in cubic inches is given for the lower and higher bounds for each of the 12 materials. Note that these bounds were meant to apply to containers in both the CUF and Decatur samples and, with certain exceptions, to the farm sample as well. The exceptions for the farm sample are identified in the footnote to the table.

TABLE E.1. Lower and Upper Bounds of Average Container Size, by Type of Material, for All Samples (in cubic inches)

Material Type	Lower Bound	Upper Bound
a. Herbicides	40[a]	70[a]
b. Pesticides	50[a]	85[a]
c. Oven cleaner	40	70
d. Drain opener	40	70
e. Toilet bowl cleaner	40	70
f. Varnish, wood preservative, oil-based paints	70	195
g. Paint thinner, stripper, solvents	70	195
h. Charcoal lighter fluid, propane gas	50	70
i. Car motor oil	70	90
j. Gasoline, kerosene	315	475
k. Car antifreeze	315	315
l. Car, truck, boat batteries	460	560

[a] For the farm sample, the lower bound was set at 160 cubic inches and the upper bound was set at 315 cubic inches for herbicides and pesticides. Note that 315 cubic inches is the approximate box-dimensioned volume of commonly available gallon bottles of these products, and 70-85 cubic inches is the approximate box-dimensioned volume of a commonly available quart bottle of these products.

The next step for each community sample was to weight these bound values for each material so that the sum of the weighted bound values for the 12 materials would tell us the average size of all containers of all types of materials mentioned in answer to a given question. For example, in answer to the question about how many containers people "currently have" in their homes, 5.76 percent of all of the containers mentioned in the CUF sample were of herbicides, 9.14 percent of all of the mentioned containers were of pesticides, 3.58 percent of all of the mentioned containers were of oven cleaners, and so on through all 12 types of materials. To get the lower bound weighted sum of volumes for CUF, the lower bound for herbicides (40 cubic inches) was multiplied by .0576, summed to the product of the lower bound of pesticides (50) and .0914, then summed to the product of the lower bound of oven cleaners (30) and .0358, and so on through the 12 types of materials.

The result for CUF was a lower bound of 87.7 cubic inches, meaning that in CUF the average container size "currently" in houses was probably not less than 100 cubic inches. The upper bound was 146.0 cubic inches. In CUF, the average HHM container size in homes, therefore, may be said to be within the range of 88 to 146 cubic inches.

For Question 8a (quantities currently at home) and Question 9 (quantities disposed of), we calculated both the lower bounds and the upper bounds of the average container size for both the CUF sample and the Decatur sample. The results were that 88 cubic inches was the lowest of all four calculated lower bounds and 190 cubic inches was the highest of all four calculated upper bounds. We may speak broadly of a range of 90 to 190 cubic inches for the average HHM and HHW container size. To simplify discussion in the main text, this single range has been used for the two city samples.

For the farm sample, the larger assumed container sizes for herbicides and pesticides resulted in a range of 125 to 225 cubic inches.

APPENDIX F

A METHODOLOGICAL NOTE ON GENDER EFFECTS IN REPORTING QUANTITIES OF HHM&W

A METHODOLOGICAL NOTE ON GENDER EFFECTS IN REPORTING QUANTITIES OF HHM&W

The tendency of males to report higher quantities than did females (see Chapter 7, especially Section 7.3.3) raises an important question. In homes where females were the household informants who responded to the interviewer, would we have received reports of a larger number of quantities currently at homes if a resident male had been the respondent instead?

Closer examination reveals that in some of the samples, women and men reported statistically indistinguishable (p = .05) quantities for certain materials--herbicides (Decatur), pesticides (CUF, Decatur) oven cleaners (CUF), drain openers (CUF, farmers), toilet bowl cleaners (CUF, Decatur, farmers), varnish, etc. (Decatur), and batteries (Decatur). The one comparison where women reported higher quantities than did men was for oven cleaners (Decatur).

For all other comparisons involving all other materials and samples, men reported higher quantities than did women. Most of these other comparisons involved materials of the type that men might more often handle than women. It seems likely that for these materials men would have more reliable information about quantities. Hence, we may have underestimates of quantities to the extent that women answered for resident men regarding the "male role" materials.

There is, unfortunately, no sure way of determining whether and to what extent women may have underestimated quantities. Many households have no adult men present, and women are indisputably the best source available for these households. There may be no bias in these instances. Even where men are present, there is no way of knowing whether there is selectivity in answering the telephone such that men in homes with higher quantities become the respondent and women in homes with lower quantities become the respondent. We know that this happened in the many instances in beginning our telephone interviews when women turned the phone over to men. Where this happened, there is not necessarily any gender-based response bias.

Suffice it to say here that our findings should be qualified with the warning that we may have underestimates of quantities. This is quite different from earlier studies of household hazardous waste, where the methods used required the principal qualification that the findings overestimated the presence of hazardous household materials at homes and in the wastestream (Dorian, 1986, p.2-4 and Section 4). Our estimates might be subject to some correction upon methodological exploration into the possibility of undercounts due to gender-based response bias. Based on some preliminary inspections of means and standard deviations for males and females taken separately, any such correction would maximally raise our quantity estimates by only a fraction of their present amounts. For the time being, we note only that our potentially underestimated quantities of HHM&W materials at or around homes are already impressively large and worthy of considerable attention.

Finally, there is considerably less differential reporting of quantities by gender when we consider the more critically important quantities of HHW materials disposed of (see Section 7.4.5) and unwanted quantities of HHW sitting around the home awaiting disposal (see Section 7.5.2).

APPENDIX G

FINAL REPORT OF THE INTERGOVERNMENTAL SOLID WASTE DISPOSAL ASSOCIATION HOUSEHOLD HAZARDOUS WASTE DISPOSAL DAY

The Intergovernmental Solid Waste Disposal Association Household Hazardous Waste Disposal Day

September 13, 1987

FINAL REPORT

PREPARED BY:

Intergovernmental Solid Waste
 Disposal Association Staff
Champaign, Illinois 61820
from GSX, Inc. information and
 survey data from R. Liebert

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*Summarized in Chapter 3.

SECTION I

INTRODUCTION

THE HOUSEHOLD HAZARDOUS WASTE DISPOSAL DAY

The Household Hazardous Waste Disposal Day, sponsored by the Intergovernmental Solid Waste Disposal Association, an association made up of the City of Champaign, City of Urbana and Champaign County, Illinois, was an event that offered communities an opportunity to safely dispose of household hazardous materials that might otherwise be improperly disposed of at local municipal landfills or indefinitely stored in the home or flushed into the sanitary sewer system.

The key to success for a program of this type is how well public awareness and education can be enhanced to encourage participation. An extremely successful public awareness program was conducted by the Association through the coordinated efforts of a number of city officials and volunteers from the community including the Farm Bureau, the Hazardous Waste Research and Information Center, the City of Champaign Public Works Department, Police Department and the Hazardous Materials Response Team from the Fire Department. Additional assistance was provided by the Meredith Corporation of Des Moines, Iowa, through their magazine Successful Farming and by Hustler's Sanitary of Champaign-Urbana. These efforts made prior to the commencement of the event. were crucial to the actual implementation, organization and overall success of the program.

When participants brought materials to the collection station, they were greeted by volunteers associated with the program. These volunteers talked to the participants about the products they routinely utilize in their homes and the proper management and disposal of the hazardous products. This education was one of the most important aspects of the program. Other volunteers surveyed the participants, the results of which are attached to this report. The success of the actual program will be identified through the following parts of this report. Through the combined efforts of the Association and GSX Services, Inc., a large quantity of hazardous materials was packaged and disposed through this program, ultimately eliminating a significant quantity of hazardous materials that could pose a risk to society.

SECTION II

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The Intergovernmental Solid Waste Disposal Association Household Hazardous Waste Disposal Event was conducted on September 13, 1987. Prior to the collection date conducted on Sunday, several remote sites were serviced by GSX on Saturday. Hazardous materials being stored at those facilities were removed and packed for disposal. The waste removed at these sites is included in this report.

The program generated approximately 33,656 pounds, or 188 55 gallon drums, of hazardous materials for disposal through GSX Services, Inc. 265 individuals delivered material for disposal at the event resulting in a rate of 127.0 pounds per participant. This figure does not include wastes, such as oils and latex paints collected through the program independently of the services rendered by GSX Services, Inc. Nevertheless, this figure does represent an astonishing level of participation throughout the community. It is as much as nine times higher than per population rates calculated for other community programs conducted by GSX Services, Inc.

Of the 265 participants, 57 were identified as being from Champaign County farm operations. The most common items brought in for disposal were old outdated oil based paints and varnishes (1,047 containers) followed by weed killers and herbicides (535). A total of 3,338 containers were delivered to the Public Works Center for disposal. However, by weight the ranking changes. 16,013 pounds of pesticides, herbicides and toxins were collected out of the total 33,656, accounting for 47.5% of the total, including more than 2,000 pounds of DDT.

The total cost of the two-day program was slightly more than $80,000. Again, compared to national figures the cost figure of less than $2.40 per participant is near the low end another indicator of a successful program.

The importance of the data discussed previously is significant. It should serve to enlighten the fact that an effective public awareness program was executed prior to the actual program. Publicity shall always prove to be a critical factor in community-related programs of this type.

SECTION III

EXPENSES

EXPENSES

The Association spent $78,427.94 on the Household Hazardous Waste Disposal Event. This total was derived from the following categories:

1)	Fixed Costs (i.e. Mobilization, Set-Up Fees, Tables, Protective Clothing, Labor, etc.)	$16,568.15
2)	Materials	$ 9,003.50
3)	Transportation	$ 5,021.29
4)	Disposal	$37,835.00
5)	Advertising	10,000
	Total	$78,427.94 (a)

Costs associated with the method of disposal vary greatly, being dependent upon the method being utilized.

Hazardous materials and wastes are disposed of by many different disposal methods, primarily dependent upon each chemical's characteristics, as well as federal and state regulations concerning the disposal of certain waste types.

Listed below is a breakdown of the various disposal methods utilized in conjunction with this program.

Disposal Method	No. of Containers	Percent of Total
Secure Landfill	136	72.3%
Incineration	50	26.6%
Aqueous Treatment	2	1.1%
	188	100.00%

(a) The City of Champaign paid an additional $3590 for disposal of City generated wastes. There was no charge for City of Champaign volunteer personnel or facilities. It is estimated that these in-kind services were valued at less than $5,000.

SECTION IV

SITE ACTIVITY

TABLE I

PUBLIC WORKS CENTER
CHAMPAIGN, IL

Hazard Class	Common Waste Types	No. of Containers Shipped	Approx. Total lbs.	% of Total (By Wgt.)
Corrosive Material	Acid/Alkaline Cleaners, etc.	5	2250	49.7%
Flammable Liquid	Paints, Solvents, etc.	7	1071	23.7%
ORM-E	Miscellaneous	2	900	19.9%
Poison-B	Pesticides, Herbicides, Toxic Metals, etc.	2	306	6.7%
Totals		16	4527	100%

This listing represents material collected and removed from the City of Champaign that was generated by the Public Works Department. The disposal cost of this material was borne directly by the City of Champaign. Most of the material represents outdated paint, chemicals and pesticides that were no longer viable for proper use yet posed a serious hazard to the facility and to personnel.

TABLE II

CHAMPAIGN COUNTY, IL

Hazard Class	Common Waste Types	No. of Containers Shipped	Approx. Total lbs.	% of Total (By Wgt.)
Poison-B	Pesticides, Herbicides, Toxic Metals, etc.	10	4500	100%

This represents material that was collected from farms in Champaign County including a significant quantity of DDT (more than 1600 pounds) and large amounts of outdated agricultural chemicals. One of the owners of a farm where some of the DDT was found contributed $470 to the Association to help defray the expense of the Hazardous Waste Collection Event.

TABLE III

HOUSEHOLD WASTE PROGRAM

Hazard Class	Common Waste Types	No. of Containers Shipped	Approx. Total lbs.	% of Total (By Wgt.)
Poison-B	Pesticides, Herbicides, Toxic Metals, etc.	71	11,207	45.5%
Flammable Liqs.	Paint, Solvents, etc.	62	9,111	37.0%
ORM-E	Miscellaneous	9	1,902	7.7%
ORM-A	Miscellaneous	3	1,050	4.3%
Corrosive Material	Acid/Alkaline Cleaners	12	1,038	4.2%
Oxidizer	Oxidizing Agents	4	312	1.3%
Flammable Solid	Miscellaneous	1	9	NA
Totals		162	24,629	100%

This list represents a breakdown of materials collected on Sunday, September 13, 1987. Included in this collection are such common household items as Coleman campstore fuel, rustproofing paint, roach killers, Sevin garden spray, tomato and rose dust, and some not so common household items like chlordane, malathion, acetone and metallic mercury.

Due to the presence of a large academic community in Champaign-Urbana several basements and garages were cleaned out resulting in numerous lab chemicals, photography chemicals and other esoteric volatile compounds.

THE INTERGOVERNMENTAL SOLID WASTE DISPOSAL ASSOCIATION
HOUSEHOLD HAZARDOUS WASTE COLLECTION DAY

TOTAL WASTE REMOVAL

Listed below is a table reflective of all waste types and quantities removed from the City of Champaign Public Works Facility during the Household Hazardous Waste Collection Days Program.

Hazard Class	Common Waste Types	No. of Containers Shipped	Approx. Total lbs.	% of Total (By Wgt.)
Poison-B	Pesticides, Herbicides, Toxic Metals, etc.	83	16,013	47.5%
Flammable Liqs.	Paint, Solvents, etc.	69	10,182	30.2%
ORM-E	Miscellaneous	17	3,288	9.7%
ORM-A	Miscellaneous	11	2,802	8.3%
Corrosive Material	Acid/Alkaline Cleaners	3	1,050	3.1%
Oxidizer	Oxidizing Agents	4	312	1.3%
Flammable Solid	Miscellaneous	1	9	NA
Totals		188	33,656	100%

As indicated in the tables previously outlined, the vast majority of household wastes generated through this program were comprised of various farm chemicals, including, but not limited to pesticides and herbicides. It is evident that much emphasis was placed on publicizing the event in the agricultural community. The known toxilogical nature of tnese types of materials is extremely severe in many cases. The removal and ultimate disposal of these types of compounds can only serve to enhance the environmental quality of Champaign-Urbana and surrounding areas.

The remaining waste types removed during the program included a large variety of paints, solvent-based materials, acidic and alkaline products, and other miscellaneous waste types, including a small quantity of Polychlorinated Biphenyls (PCB).

SECTION V

HEALTH & SAFETY

HEALTH & SAFETY

No spills, accidents or incidents occurred during the Household Hazardous Waste Collection Day Event. Substantial measures, such as the diking of all immediate working areas and the posting of warning notifications, were taken by both GSX Services, Inc. and Intergovernmental Solid Waste Disposal Association personnel with the help of the many volunteers to prevent any accidents that might have resulted in adverse effects to the environment or human health. Prior to the beginning of the program, the City of Champaign prepared a Contingency Plan with the help of the Champaign Hazardous Materials Response Team in the event of any accidents or incidents. Safety equipment, including protective clothing, was utilized by all personnel.

SECTION VI

FINAL SUMMARY

FINAL SUMMARY

The Household Hazardous Waste Program held in Champaign, Illinois on September 13, 1987 was a success. All initial forecasts, made prior to the commencement of the program, were completely surpassed. The response from the community to the program was excellent. The storage of unwanted hazardous material in homes and/or disposal of these materials through local municipal systems is a problem that both society and government must address. It is evident that the Intergovernmental Solid Waste Disposal Association provided the community with an excellent solution to this problem. This solution not only provided the community with a more comprehensive understanding of the nature of the problem, but with a more sound environment through the disposal of these materials in a chemically-secure and environmentally safe manner.

APPENDIX H

SURVEY RESULTS ON PARTICIPANTS IN THE SEPTEMBER 13, 1987, CHAMPAIGN COUNTY HOUSEHOLD AND FARM HAZARDOUS WASTE COLLECTION EVENT

SURVEY RESULTS ON PARTICIPANTS IN THE SEPTEMBER 13, 1987, CHAMPAIGN COUNTY HOUSEHOLD AND FARM HAZARDOUS WASTE COLLECTION EVENT

Tables accompanying an oral report on findings.

Presented to the
Intergovernmental Solid Waste Disposal Association
of the City of Champaign, City of Urbana, and Champaign County

December 16, 1987

Prepared by

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TABLE H.1. NUMBER OF SOURCE UNITS (HOUSEHOLDS, FARMS, AND OTHER UNITS THAT WERE SOURCES OF MATERIALS) AND NUMBER OF DELIVERING VEHICLES PARTICIPATING IN THE SEPTEMBER 13, 1987, HOUSEHOLD AND FARM HAZARDOUS WASTE COLLECTION DAY

ITEM	SOURCE UNITS	DELIVERING VEHICLES
Number of "households" represented	**262**	
(As a percent of all households in cities of Champaign, Urbana, and urbanized fringe)	**(0.7%)**	
Number of vehicles delivering for these households		218 [a]
Number of "farm operations" represented	**94**	
(As a percent of all farms in Champaign County)	**(5.2%)**	
Number of vehicles delivering for these farms		53 [b]
Number of "dormitories, other group housing, etc." represented	**2**	
Number of vehicles delivering for these miscellaneous units		2 [c]
TOTAL NUMBER OF UNITS	**358**	
TOTAL NUMBER OF VEHICLES FILLING OUT DROP-OFF REPORTS		261 [d]

[a] There were two outliers (vehicles representing an unusually large number of households). One vehicle was said to represent 11 households, and another was said to represent 24 households. If each of these is counted as representing only one household, the number of represented households is 229, a number that is 0.6% of all households in Champaign, Urbana, and urbanized fringe.

[b] Outliers: One vehicle was said to represent 32 farms. If this is counted as representing only one farm, the number of represented farms is 63, which is 3.5% of the farms in Champaign County.

[c] Neither vehicle represented "group housing"; both were in the "etc." category. One vehicle was said to represent the Champaign Park District, and the other vehicle was said to represent a Parkland College instructor's collection of solvents and photo chemicals.

[d] Some vehicles represented more than one type of unit.

Discussion: See notes following Table H.3.

TABLE H.2. NUMBER OF CONTAINERS OF VARIOUS TYPES OF MATERIALS DROPPED OFF, BY SOURCE. (In parentheses: The number of vehicles and units [households, farms, etc.] providing materials.)

TYPE OF MATERIAL	SOURCE OF MATERIALS				
	YOUR OWN HOME	NEIGHBORS OR FRIENDS	FARMS	ETC.	TOTALS
a. Weed killers or herbicides	294	8	232	1	535
(Vehicles/Units)	(96/114)	(4/5)	(41/50)	(1/1)	
b. Insect killers, pesticides, poisons	428	4	172	7	611
(Vehicles/Units)	(124/143)	(3/5)	(34/69)	(1/1)	
c. Varnishes, wood preservatives, oil based paints	1,007	20	20	0	1,047
(Vehicles/Units)	(120/161)	(3/8)	(3/3)		
d. Paint thinners, strippers, solvents	407	15	5	60	487
(Vehicles/Units)	(93/101)	(3/6)	(3/5)	(1/1)	
e. Household cleaners	220	0	0	5	225
(Vehicles/Units)	(62/91)			(1/1)	
f. Motor oil	64	0	2	0	66
(Vehicles/Units)	(31/32)		(2/3)		
g. Anti-freeze	36	0	1	0	37
(Vehicles/Units)	(16/16)		(1/1)		
h. Gasoline, "gas," kerosene, petroleum	29	0	0	0	29
(Vehicles/Units)	(15/16)				
i. Batteries	7	0	4	0	11
(Vehicles/Units)	(7/7)		(2/2)		
j. Auto care products (n.e.c.)	17	0	0	0	17
(Vehicles/Units)	(7/7)				
k. Lead paint (n.e.c.)	1	0	0	0	1
(Vehicles/Units)	(1/1)				
l. Latex paint (n.e.c.)	50	0	0	0	50
(Vehicles/Units)	(11/12)				
m. Enamel paint (n.e.c.)	3	0	0	0	3
(Vehicles/Units)	(3/3)				
n. "Paint" (n.e.c.)	29	0	0	0	29
(Vehicles/Units)	(6/6)				

(Table H.2 continued)

TABLE H.2. Continued

	SOURCE OF MATERIALS				
TYPE OF MATERIAL	YOUR OWN HOME	NEIGHBORS OR FRIENDS	FARMS	ETC.	TOTALS
o. Smoke alarms	2	0	0	0	2
(Vehicles/Units)	(1/1)				
p. Fertilizer	15	0	0	0	15
(Vehicles/Units)	(6/7)				
q. Fungicide (n.e.c.)	5	0	0	0	5
(Vehicles/Units)	(1/1)				
r. "Garden chemicals" (n.e.c.)	1	0	0	0	1
(Vehicles/Units)	(1/1)				
s. Photo chemicals (n.e.c.)	9	0	0	11	20
(Vehicles/Units)	(1/1)			(1/1)	
t. Creosote (n.e.c.)	1	0	0	0	1
(Vehicles/Units)	(1/1)				
u. Lead	1	0	0	0	1
(Vehicles/Units)	(1/1)				
v. Mercury	1	0	0	0	1
(Vehicles/Units)	(1/1)				
w. Asbestos materials	6	0	0	0	6
(Vehicles/Units)	(2/2)				
x. Drain cleaners	3	0	0	0	3
(Vehicles/Units)	(2/2)				
y. Empty containers	7	0	1	0	8
(Vehicles/Units)	(5/5)		(1/1)		
z. Other[a]	112	0	0	4	116
(Vehicles/Units)	(54/66)			(2/2)	
aa. Unknown	9	0	2	0	11
(Vehicles/Units)	(5/5)		(2/5)		
TOTALS	2,764	47	439	88	3,338

NOTE: n.e.c. is "not elsewhere classified" for categeries that may overlap with others.

[a] A few examples of "other": printed circuit board, stump remover, shoe polish, roof coating, spackling, adhesive, reagents, glycerin, air freshener, asphalt spray, wallpaper base, shoe waterproofer, cement remover, stamp price remover, pipe compound, magnesium.

TABLE H.3. VEHICLES REPORTING ALTERNATIVE DISPOSAL OPTIONS FOR HAZARDOUS WASTE, AND NUMBER AND PERCENT OF CONTAINERS OF HAZARDOUS MATERIALS THAT WOULD HAVE BEEN DISPOSED OF IN VARIOUS ALTERNATIVE WAYS, WERE IT NOT FOR THE SEPT. 13 COLLECTION DAY; BY SOURCE.

LIKELY ALTERNATIVE MODE OF DISPOSAL	Number of Vehicles Reporting Likely Alternative Disposal Mode	NUMBER AND PERCENT OF CONTAINERS, BY SOURCE OF MATERIALS				
		YOUR OWN HOME	NEIGHBORS OR FRIENDS	FARMS	ETC.	TOTALS
a. Put down sink or toilet	8	111	0	0	0	111
(% of column)	(3.1)	(4.0)				(3.3)
b. Put down storm sewer in street	4	52	0	0	0	52
(% of column)	(1.5)	(1.9)				(1.6)
c. Put in garbage can	84	1,188	23	21	0	1,232
(% of column)	(32.2)	(43.0)	(48.9)	(4.8)		(36.9)
d. Dump on ground	17	152	0	61	0	213
(% of column)	(6.5)	(5.5)		(13.9)		(6.4)
e. Would not dispose of it, would continue to store	169	1,798	28	342	88	2,256
(% of column)	(64.8)	(65.1)	(59.6)	(77.9)	(100.0)	(67.6)
f. Phone the county or city for disposal information	161	444	7	55	77	583
(% of column)	(16.1)	(16.1)	(14.9)	12.5)	(87.5)	(17.5)
g. Other	11	68	1	55	0	124
(% of column)	(4.2)	(2.5)	(2.1)	(12.5)		(3.7)
TOTAL VEHICLES [a]	261					
TOTAL CONTAINERS [b]		2,764	47	439	88	3,338

[a] TOTAL VEHICLES = the actual total number of vehicles participating in the drop-off. Respondents could give multiple responses; hence, percentages sum to more than 100%.

[b] TOTAL CONTAINERS = the actual total number of containers, as given in Table H.2. Respondents could give multiple responses; hence, percentages sum to more than 100%.

NOTE: For a discussion of this table in comparison with a general population survey, see the next page.

DISCUSSION OF TABLES H-1 THROUGH H.3:

COMPARISONS WITH THE JULY 1987 COMMUNITY HOUSEHOLD SURVEY ON HOUSEHOLD HAZARDOUS WASTE

Data from the July l987 survey indicated that households in Champaign, Urbana, and urbanized fringe had improperly disposed of approximately 45,500 containers of hazardous waste during the previous year and that Champaign County farmers had improperly disposed of about 660 containers of hazardous waste during the previous year. This means that the 3,338 containers brought to the collection drop-off on September 13 were about 7% of the quantity annually improperly disposed of by farmers and residents of Champaign/Urbana.

It appears from Table H.3 that up to two-thirds of these 3,338 containers were taken from storage rather than diverted from improper disposal. The actual diversion from improper disposal as a direct result of the collection event was apparently no more than 1608 containers (sum of rows a, b, c, and d in Table H.3), or 48% of what was dropped off, or 3.5% of what is annually improperly disposed of by Champaign/Urbana and farm households.

Finally, the July survey determined that there were an estimated 3,300 households in Champaign/Urbana and urbanized fringe with containers of hazardous waste that they wanted to get rid of, while there were about 333 farms with unwanted hazardous waste that included pesticides, herbicides, and petroleum products. The 262 households that brought hazardous waste to the dropoff were only 7.9% of the total estimated 3,300 Champaign/Urbana households that in July had hazardous waste that they wanted to get rid of. The 94 farms that brought hazardous waste to the dropoff were 28.2% of the total estimated 333 farms in the county that had hazardous materials in July that they wanted to get rid of.

These are obviously significant portions of the "eligible" or potential population of participants who actually parrticipated, but most of the potential population remains to be reached and its stored but unwanted hazardous waste collected for proper disposal. In addition, there are those households and farms - nearly equal in number to the ones with unwanted but stored hazardous waste - who have been inapporpriately disposing of some disposing of some hazardous materials over the pervious year. Except for the overlap of about one out of three between those who store and those who inappropriately dispose of unwanted hazardous waste, the latter remain largely untouched by a collection event such as the one September 13.

TABLE H.4. PERCENT OF RESPONDING PARTICIPANTS [a] HEARING ABOUT THE HAZARDOUS WASTE COLLECTION DAY FROM VARIOUS INFORMATION SOURCES, FOR PARTICIPANTS BRINGING MATERIALS FROM HOUSEHOLDS, FROM FARMS, FROM KEY C/U NEIGHBORHOODS, AND TOTAL

INFORMATION SOURCE	HOUSEHOLDS %[b]	FARMS %[b]	KEY C/U NEIGHHOODS: %[bc]	TOTALS %[b]	TOTALS N[b]
Brochure or flyer	53.9%	47.2%	60.0%	52.5%	137
Poster	2.3	0	2.9	1.9	5
Neighbor or friend	2.8	5.7	1.9	3.1	8
Family member	2.3	0	0	1.9	5
At work/From co-workers	6.9	0	8.6	6.1	16
Church	1.4	0	0	1.1	3
Farm Bureau	11.1	73.6	3.8	20.3	53
School	0	0	0	0	0
Other local club or organization	6.0	0	7.6	5.0	13
Library	0.5	0	0	.4	1
Newspaper	49.8	45.3	56.2	48.7	127
Radio	29.0	15.1	38.1	26.8	70
Television	7.4	7.5	7.6	7.3	19
Magazine	1.8	17.0	0	3.4	9
Display at the mall	0.5	0	1.0	0.4	1
County fair	0.5	0	0	0.4	1
Other	8.3	3.8	7.6	7.7	20
Involved in the planning	5.5	1.9	9.5	4.6	12
Don't know	0	0	0	0	0

[a] "Responding participants" refers to those who filled out the questionnaire, with one responding participant per vehicle.

[b] Because of multiple responses, columns add to more than the total number of vehicles (261) and to more than 100%.

[c] The "Key C/U Neighborhoods" are those that are shaded in Figure H.2.

TABLE H.5. NUMBER AND PERCENT OF THE PARTICIPATING VEHICLES TRAVELING VARIOUS DISTANCES ONE WAY TO GET TO THE COLLECTION SITE

DISTANCE TRAVELED ONE WAY, IN MILES	NUMBER	PERCENT
2 or less	53	21.4%
3-4	82	33.0
5-6	34	13.7
7-10	33	13.4
11-20	34	13.7
21-35	12	4.8
TOTALS	248	100.0%
Mean miles traveled [a]	6.9	
Median miles traveled	4.1	

NOTE: This table is based on 248 cases; there was no answer for 13 vehicles.

[a] Mean distance traveled by vehicles from households was 5.0 miles, and from farms it was 16.0. In the July 1987 survey of household heads (or their adult substitutes), those in Champaign, Urbana, and urbanized fringe said that they would travel a mean of 5.0 miles to a hazardous waste collection site, and farmers said that they would travel a mean of II.4 miles.

TABLE H.6. PERCENT OF RESPONDING PARTICIPANTS HAVING A NEED FOR A HAZARDOUS WASTE COLLECTION SERVICE OF VARIOUS PERIODICITIES, FOR PARTICIPANTS BRINGING MATERIALS FROM HOUSEHOLDS, FROM FARMS, AND TOTAL

NEEDED PERIODICITY OF COLLECTION	HOUSEHOLDS Percent	FARMS Percent	TOTALS Percent	TOTALS Number
Less than once a year	36.6%	39.6%	36.9%	92
Once a year	54.6	60.4	55.9	139
Two or three times a year	8.3	0	6.8	17
Four of more times a year	.5	0	.4	1
TOTAL	100.0%	100.0%	100.0%	249

NOTE: Of the total of 261 responding participants, there were 12 "no answers."

TABLE H.7. PERCENT OF RESPONDING PARTICIPANTS PREFERRING VARIOUS TYPES OF HAZARDOUS WASTE COLLECTION PROGRAMS, FOR PARTICIPANTS BRINGING MATERIALS FROM HOUSEHOLDS, FROM FARMS, AND TOTAL

PREFERRED PROGRAM TYPE	HOUSEHOLDS Percent	FARMS Percent	TOTALS Percent	TOTALS Number
"A temporary collection site like this one"..........	59.6%	75.0%	62.6%	151
"A permanent collection site"...........................	39.4	23.1	36.2	87
"Something else"...	1.0	1.9	1.2	3
"None. There shouldn't be a collection site".....	0.0	0.0	0.0	0
TOTALS..	100.0%	100.0%	100.0%	241

NOTE: Of the total of 261 responding participants, there were 20 "no answers." In the July 1987 general population survey of household heads (or their adult substitutes), 40.2% of those in the cities of Champaign, Urbana, and urbanized fringe favored a collection site for hazardous waste drop-off, and 58.8% preferred curbside pickup. Among farmers, the July 1987 survey found 67.7% favored a collection site and 32.3% favored curbside pickup.

TABLE H.8. PERCENT OF RESPONDING PARTICIPANTS WHO RECYCLE VARIOUS AMOUNTS OF HOUSEHOLD RECYCLABLES, FOR PARTICIPANTS BRINGING MATERIAL FROM HOUSEHOLDS, FROM FARMS, AND TOTAL

EXTENT OF RECYCLING	HOUSEHOLDS Percent	FARMS Percent	TOTALS Percent	TOTALS Number
"Recycle all of your cans, bottles, and newspapers"	53.5%	20.8%	47.0%	115
"Recycle most"..	17.0	18.9	18.9	46
"Recycle some"..	22.0	33.9	23.4	57
"Never recycle"..	7.5	26.4	10.7	26
TOTALS..	100.0%	100.0%	100.0%	244

NOTE: Of the total of 261 responding participants, there were 17 "no answers." In the July 1987 general population survey of household heads (or their adult substitutes), 18.7% of those in Champaign, Urbana, and urbanized fringe said that they recycled all of these materials, and 10.2% of the farmers so reported. In the same survey, another 14.7% of the city residents said that they recycled "most" of these materials, while another 21.4% of the farmers so reported.

TABLE H.9. PERCENT OF RESPONDING PARTICIPANTS INDICATING THE IMPORTANCE TO THEM OF PROTECTING THE QUALITY OF THE LOCAL ENVIRONMENT IN CHAMPAIGN COUNTY, FOR PARTICIPANTS BRINGING MATERIAL FROM HOUSEHOLDS, FROM FARMS, AND TOTAL

IMPORTANCE	HOUSEHOLDS	FARMS	TOTALS	
	Percent	Percent	Percent	Number
Very important	95.5%	86.8%	93.8%	228
Somewhat important	4.0	13.2	5.8	14
Not very important	.5	0	.4	1
TOTALS	100.0%	100.0%	100.0%	243

NOTE: Of the total of 261 responding participants, there were 18 "no answers."

TABLE H.10. NUMBER AND PERCENT OF RESPONDING PARTICIPANTS WHO USUALLY VOTE IN LOCAL ELECTIONS

USUALLY VOTE IN LOCAL ELECTIONS	NUMBER	PERCENT
Yes [a]	226	94.2%
No	14	5.8
TOTALS	240	100.0%

NOTE: There were 21 "no answers."

[a] 93.4% of participants bringing materials from households said "yes," and 96.2% of participants with materials from farms said "yes." In the July 1987 general population survey of household heads (or their adult substitutes), 63.8% of those in Champaign, Urbana, and urbanized fringe said that they usually voted in local elections, and 94.9% of farmers so reported.

TABLE H.11. MEAN AND MEDIAN NUMBER OF PERSONS PER HOUSEHOLD AMONG RESPONDING PARTICIPANTS

Mean number of persons per household [a]	2.55
Median number of persons per household	2.26

NOTE: There were 26 "no answers."

[a] Mean for participants with materials from households was 2.48; mean from farms was 2.88. In the July I987 general population survey of adults, mean household size was 2.46 in Champaign, Urbana, and urbanized fringe, and 2.91 among farmers.

TABLE H.12. NUMBER AND PERCENT OF RESPONDING PARTICIPANTS LIVING IN A SINGLE-FAMILY HOUSE

Number in single-family house	230
Percent in single-family house [a]	94.7%

NOTE: There were 18 "no answers."

[a] For participants with materials from households: 94.0%; with materials from farms: 98.1%. In the general population survey of adults in July 1987, 56.3% of all households in Champaign, Urbana, and urbanized fringe lived in single-family houses, and 92.9% of farmers lived in single-family houses.

TABLE H.13. EDUCATION OF RESPONDING PARTICIPANTS

HIGHEST LEVEL OF SCHOOL ATTENDED	NUMBER	PERCENT
Grade school	1	.4%
High school	51	21.0
Undergraduate college	79	32.5
Graduate school [a]	112	46.1
TOTALS	243	100.0%

NOTE: There were 18 "no answers."

[a] Of those bringing household materials, 52.8% had some graduate education. Of those bringing farm materials, 15.1% had some graduate education. In the general population survey of household heads (or their adult substitutes) in July 1987, 25.2% of respondents in the cities of Champaign, Urbana, and urbanized fringe had some graduate education, and 4.1% of farmers had some graduate education.

TABLE H.14. AGE OF RESPONDING PARTICIPANTS (AGE ATTAINED DURING THE YEAR 1987)

AGE		NUMBER	PERCENT
24 and under		3	1.3%
25 - 34		28	11.8%
35 - 44		55	23.2%
45 - 54		44	18.6%
55 - 64		45	19.0%
65 - 74		46	19.4%
75 and over		16	6.8%
TOTALS		237	100.1%
Mean age [a]	**52.3**		
Median age	**52.5**		

NOTE: There were 24 "no answers."

[a] Mean age of respondents with material from households: 52.6. Mean age of respondents with material from farms: 50.6. In the general population survey of households in the cities of Champaign, Urbana, and urbanized fringe in July 1987, the mean age of adults (mostly household heads) was found to be 39.5. The survey of farmers in July 1987 found a mean age of 51.4.

TABLE H.15. OCCUPATION OF HEAD OF RESPONDING PARTICIPANT'S HOUSEHOLD [a]

OCCUPATION	NUMBER	PERCENT
a. Professor, instructor, University administrator, scientist, astronomer	44	16.9%
b. Teacher, school administrator	11	4.2
c. Physician, medical sciences, management in health care	9	3.4
d. Chemist, environmental engineer, agricultural engineer, agronomist, entomologist, horticulturalist, geologist, agricultural advisor, agricultural researcher	14	5.4
e. Other manager, professional	39	14.9
f. Technical, sales, administrative assistant	19	17.3
g. Service occupations: security and child care	2	.8
h. Farming	39	14.9
i. Retired farmer	7	2.7
j. Farm janitor	1	.4
k. Blue collar	7	2.7
l. Student	1	.4
m. Homemaker	1	.4
n. Don't know	7	2.7
o. No answer	26	10.0
TOTALS	261	100.0%

[a] The question included the instruction: Homemakers should indicate spouse's occupation. Students should indicate "student." In the general population survey of households in Champaign, Urbana, and urbanized fringe in July 1987, the percent of adult respondents in occupations corresponding to (a), (b), (c), (d), and (e) was found to be 31.9%, as compared to 44.8% in the present table.

TABLE H.16. GENDER OF RESPONDING PARTICIPANTS

GENDER	NUMBER	PERCENT[a]
Male	174	70.4%
Female	73	29.6%

NOTE: There were 14 "no answers."

[a] Of those with household materials, 65.7% were male; of those with farm materials, 88.5% were male.

TABLE H.17. LENGTH OF RESIDENCE OF RESPONDING PARTICIPANTS

LENGTH OF RESIDENCE, IN YEARS	NUMBER	PERCENT	CUMULATIVE PERCENT
0 - 4	21	8.5%	8.5%
5 - 9	22	8.9	17.4
10 - 19	40	16.2	33.6
20 - 29	33	13.4	47.0
30 - 39	46	18.6	65.6
40 - 49	32	13.0	78.5
50 - 59	24	9.7	88.3
60 - 69	15	6.1	94.3
70 and up (highest is 77)	14	5.7	100.0
Mean length of residence[a]	**31.4 Years**		
Median length of residence	**29.9 Years**		

NOTE: There were 14 "no answers."

[a] Mean for those with household materials: 29.3 years. For those with farm materials, it was 41.9 years. In the July 1987 general population survey of household heads (or their substitutes), the mean length of residence of Champaign, Urbana, and urbanized fringe respondents was 15.9 years; for farmers, it was 35.6 years.

TABLE H.18. NUMBER AND PERCENT OF VEHICLES (OR RESPONDING PARTICIPANTS), AND NUMBER OF CONTAINERS DROPPED OFF, FROM EACH TOWNSHIP OR CITY IN CHAMPAIGN COUNTY

	VEHICLES		CONTAINERS	
TOWN (AND CITY FOR CHAMPAIGN AND URBANA)	Number	Percent	Total	Mean
Ayers	1	.4%	5	5.0
Brown	3	1.2	15	5.0
Champaign (Includes both City and Town of...)	102	41.3	1,378	13.5
Colfax	1	.4	9	9.0
Compromise	6	2.4	33	5.5
Condit	1	.4	1	1.0
Crittenden	2	.8	13	6.5
East Bend	1	.4	1	1.0
Harwood	1	.4	2	2.0
Hensley	1	.4	6	6.0
Ludlow	1	.4	7	7.0
Mahomet	6	2.4	48	8.0
Ogden	1	.4	5	5.0
Pesotum	2	.8	13	6.5
Philo	1	.4	1	1.0
Rantoul (Includes both Village and Town of...)	1	.4	3	3.0
Raymond	1	.4	8	8.0
Scott	6	2.4	75	12.5
Sidney	3	1.2	18	6.0
Somers	1	.4	1	1.0
South Homer	1	.4	4	4.0
Stanton	1	.4	21	21.0
St. Joseph	9	3.6	84	9.3
Tolono	6	2.4	86	14.3
Urbana (Includes both Town of Urbana and coterminous City of Urbana and Town of Cunningham)	81	32.8	1,111	13.7
Savoy Village (If volunteered. Some of Savoy may be reported in Towns of Champaign and Tolono)	3	1.2	16	5.3
Outside Champaign County	3	1.1	120	40.0
TOTALS	247	100.0%	3,084	12.5

NOTE: There were 14 "no answers" regarding town or city of residence. These 14 vehicles dropped off a total of 254 containers, for an average of 18.1 per vehicle.

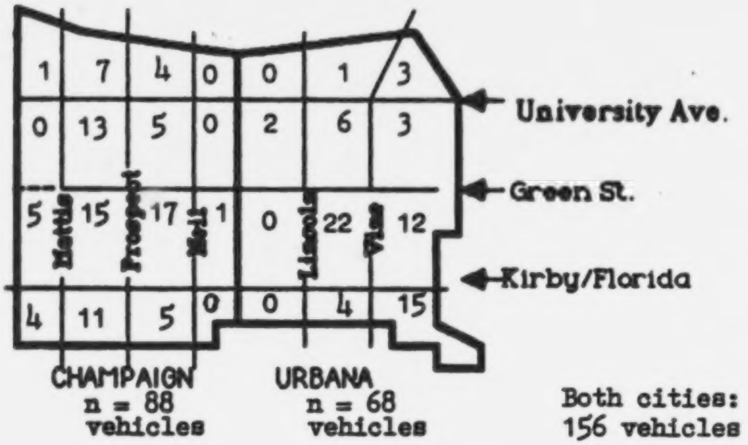

1
7
4
0
0
1
3
University Ave.
0
13
5
0
2
6
3
Green St.
5
Mattis
15
Prospect
17
Neil
1
0
Lincoln
22
Vine
12
Kirby/Florida
4
11
5
0
0
4
15
CHAMPAIGN
n = 88
vehicles
URBANA
n = 68
vehicles
Both cities:
156 vehicles

FIGURE H.1. NUMBER OF VEHICLES PARTICIPATING, BY SECTOR OF CHAMPAIGN/URBANA.

NOTE: The number printed in each sector is the number of vehicles in which the responding participant said that he/she came from that sector. Total number of vehicles in Figure H.1 is 156. Regarding missing data: Of the 183 indicating that they came from Champaign or Urbana in Table H.17 (Q. 18a on the questionnaire), 12 marked the map indicating that they lived just outside the cities but (as per their answer to Q. 18a) in the same-name townships, and 15 did not mark the map.

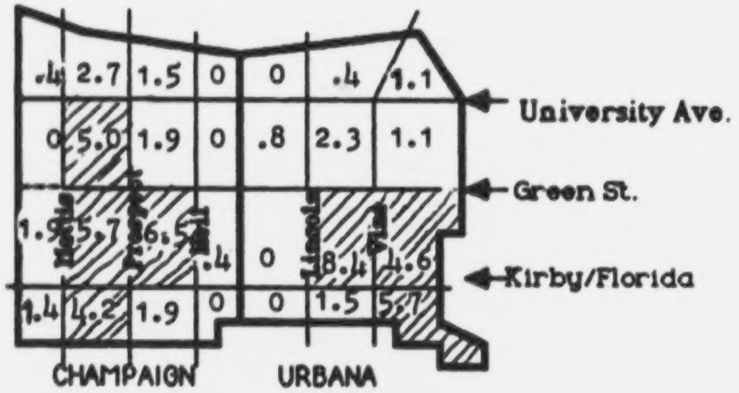

.4
2.7
1.5
0
0
.4
1.1
University Ave.
0
5.0
1.9
0
.8
2.3
1.1
Green St.
1.9
Mattis
5.7
Prospect
6.5
Neil
.4
0
Lincoln
8.4
Vine
4.6
Kirby/Florida
1.4
4.2
1.9
0
0
1.5
5.7
CHAMPAIGN
URBANA

FIGURE H.2. PERCENT OF VEHICLES PARTICIPATING, BY SECTOR OF CHAMPAIGN/URBANA.

NOTE: The number printed in each sector is the percent of all 261 vehicles coming from that sector. Each of the shaded sectors provided 4.2% or more of the vehicles. The seven shaded sectors provided 105 vehicles, or 40.2% of the total. See note to Figure H.1 regarding missing data.

TABLE H.19. NUMBER AND PERCENT OF RESPONDING PARTICIPANTS WITH COMMENTS

TYPE OF COMMENTS	NUMBER	PERCENT
Positive	75	28.7%
Suggestions	9	3.4
Negative	3	1.1
No comments	174	66.8
TOTALS	261	100.0%

EXAMPLES OF COMMENTS:
(C = Champaign resident; U = Urbana resident; F = farmer; O = other, i.e., non-CU resident and non-farmer)

"Great idea." (O)

"I like your endeavor to clean up waste. Thank you kindly." (F)

"Excellent program. Next time, be prepared." (F)

"I think this is a wonderful idea and am very afraid of the results of inappropriately dumped waste." (U)

"Great! Have been waiting for such an event! Most people, particularly farmers, are unaware of volume of TOXICS dumped at random." (O)

"Thank you." (U)

"I think this is a very worthwhile undertaking. Thanks for making it possible. I only wish our home was in the community recycling (pick-up) zone." (C)

"Good idea." (F)

"A very good program." (F)

"Hope this sort of operation is carried out in a number of other Illinois cities as soon as possible. This operation looks well organized." (U)

"I have been storing my hazardous wastes until I could find out how and where to dispose of them properly. This is a great service to the community." (C)

"Very glad for service. I had this stuff & didn't know what to do with it, did not want to pour it anywhere." (C)

"Entertainment by a strolling musicians - a gypsy violinist would be nice." (U)

"Good idea!" (C)

COMMENTS, continued.

"This is such an excellent help. I really don't want to be a polluter but it seems that we end up using things that are dangerous when there are leftovers. Thanks for helping us to be more responsible stewards of our environment. I think it would be helpful to have this once or twice a year - well-publicized so we can take better advantage of it." (U)

"Thanks. This has made grandmother nervous." (U)

"This is great." (U)

"Very good, volunteers!" (C)

"I think this is a very worthwhile and important project, hope that it can continue in future years. Appreciate cooperation of Champaign County Farm Bureau (and) *Successful Farming*." (F)

"Good job. Penta preservative not taken!" (C)

"Line moved too slow." (C)

"Thanks!" (U)

"This is a much needed program." (U)

"Good project." (C)

"Very good program. I'm glad to see this happening." (C)

"I am very glad we had the opportunity to dispose of these chemicals properly. Thank you." (F)

"You said this was going to be fast. This line is a bummer. You should just take all the stuff and let us get out of here." (U)

"Fine thing." (F)

"Handle with care - absorbed by skin with subsequent paralysis." (C)

"I would like a place to dispose of this sort of stuff and info about what chemicals etc. are declared unsafe by EPA etc. available all the time." (C)

"Thanks" (O)

"I want/deserve sidewalk/curb recycling!" (C)

"I commend this effort." (U)

"Keep it up." (U)

"Great idea - keep it up. Critically important that we plan for the future as well as the present environment." (C)

COMMENTS, continued.

"Move faster!" (U)

"This is a great idea. I hope it will save our ground water from eventually receiving many contaminants." (O)

"Good idea." (C)

"Great effort should be exerted to educate the general population about the danger to health and the environment of pesticides and other unbiodegradable materials so that few will be bought. You have the whole chemical industry against you." (C)

"Long waits are powerful deterents to voluntary recycling efforts." (C)

"I think the collection idea is great! Although we try to buy the amount of pesticide required, and use it responsibly, there is bound to be some leftover, and a container to deal with. We need a way to deal with these problems responsibly." (O)

"I think this is a great idea & appreciate this type of help." (U)

"Thanks for your efforts. There should be a law to penalize people for dumping these toxins/poisons into water systems." (C)

"I think this is great that this is being done!" (U)

"Thanks" (U)

"I hope more can be done state and nationwide." (U)

"Very good day, thank you all. How about a separate day for farmers (although they should pay a deposit on their pest, herb, fung containers and return them). What about the University, and other major institutions in town? You may be unnecessarily exposing residents to other people's waste with this type of disposal." (F/C)

"This is a great endeavor! Well arranged! Repeat about once every five years. (F)

"Good idea." (U)

"Seems very well organized." (C)

"I think this is a great idea. I've had chlordane dust...wanted to get rid of for years. Will use for paint thinner, and motor oil, if program is repeated." (U)

"Route people through at a faster pace - to keep people returning in the future needs to be fast & convenient." (U)

"Thanks" (F)

APPENDIX I

ON-SITE QUESTIONNAIRE

INTERGOVERNMENTAL SOLID WASTE DISPOSAL ASSOCIATION

CHAMPAIGN COUNTY
CITY OF CHAMPAIGN
CITY OF URBANA

HOUSEHOLD AND FARM HAZARDOUS WASTE COLLECTION DAY

Champaign County: September 13, 1987

Participant Drop-Off Report

Participant:

One drop-off report is requested for each vehicle. Please fill out the report and hand it to the attendant at the big "STOP HERE" sign so you can be directed to the appropriate waste drop-off station. Volunteers are available along the way to provide you with assistance if needed.

Your responses will be anonymous and confidential, and will only be used in statistical summaries. Analyses will be conducted by the University of Illinois Survey Research Laboratory for the sponsors of the Hazardous Waste Collection Day.

THANK YOU FOR HELPING US ASSESS THE EFFECTIVENESS OF THE FIRST HAZARDOUS WASTE COLLECTION DAY IN ILLINOIS.

P.O. Box 967
Urbana, IL 61801
217-384-2329

Number ____________ 1-6

HOUSEHOLD AND FARM HAZARDOUS WASTE COLLECTION DAY

Participant Drop-Off Report

GENERAL INSTRUCTIONS: PLEASE ANSWER ALL PARTS OF EACH QUESTION AS BEST YOU CAN. IF YOU ARE UNSURE, PLEASE GIVE US YOUR BEST ESTIMATE.

1. From how many households, farms, and/or other sources did you collect material for this delivery? (WRITE IN THE NUMBER FOR EACH SOURCE.)

_______ households _______ farm operations _______ dormitories, other group housing, etc. 7-12

2. About how many partial or full containers of each of the following products have you brought here to drop off today? (WRITE IN THE NUMBER OF CONTAINERS FROM EACH SOURCE.)

	Your own home	Neighbors or friends	Farm operations	Group housing	
a. Weed killers or herbicides . . .					13-24
b. Insect killers, pesticides, poisons					25-36
c. Varnishes, wood preservatives, oil based paints					37-48
d. Paint thinners, strippers, solvents					49-60
e. Household cleaners					61-72
f. Motor oil					73-79/BK 80/1 7-18 1-6/DUP
g. Anti-freeze					19-30

All other products being dropped off:
(STATE PRODUCT AND QUANTITIES BY SOURCE.)

h.					31-44
i.					45-58
j.					59-72 73-79/BK 80/2 1-6/DUP
k.					7-20

431

3. If you hadn't used this drop-off collection service, what would you have done with these products? (CIRCLE THE CODE NUMBERS FOR ALL THAT APPLY.)

Put down sink or toilet 1 21

Put down storm sewer in street 2 22

Put in garbage can 3 23

Dump on the ground 4 24

Would not dispose of it, would continue to store . . . 5 25

Phone the county or city for disposal information . . 6 26

Other (PLEASE SPECIFY) ________________________ 7 27

4. How did you hear about today's hazardous waste collection? (CIRCLE ALL THAT APPLY.) 28-63

Brochure or flyer 01

Poster 02

Neighbor or friend 03

Family member 04

At work/From co-workers 05

Church 06

Farm Bureau 07

School 08

Other local club or organization 09

Library 10

Newspaper 11

Radio 12

Television 13

Magazine 14

Display at the mall 15

County fair 16

Other (PLEASE SPECIFY) _____ 17

____

DON'T KNOW 98

5. Approximately, how many miles did you travel one way to bring material to this collection site?

________________ miles 64-66

6. In the future, how often do you think you will have a need for a collection service for hazardous waste? (CIRCLE ONE.)

Less than once a year 1 67

Once a year 2

Two or 3 times a year 3

Four or more times a year 4

7. What type of collection program do you think the city or county should establish for hazardous household waste? (CIRCLE ONE.)

A temporary collection site like this one . 1 68
A permanent collection site 2
Something else (PLEASE SPECIFY) ___________ 3
____
None. There shouldn't be a collection site 4

8. Does your household . . .

Recycle all of your household cans, bottles, and newspapers, ... 1 69
Recycle most, ... 2
Recycle some, or 3
Never recycle? 4

9. How important is it to you that the quality of the local environment in Champaign county is protected?

Very important 1 70
Somewhat important 2
Not very important 3

10. Do you usually vote in local elections?

Yes 1 71
No 2

11. Including yourself, how many people live in your household?

____________________ 72-73

12. In what kind of housing do you live?

Single family house 1 74
Other (PLEASE SPECIFY) ___________ 2
____

13. What is the highest level of school that you have attended?

Grade school 1 75
High school 2
Undergraduate college 3
Graduate school 4

14. In what year were you born? 19 ______________ 76-77

15. What is the head of your household's occupation? (Homemakers should indicate spouse's occupation. Students should indicate "student".) 78-79

80/3

____ 1-6/DUP

16. What is your sex?

Male 1 7

Female 2

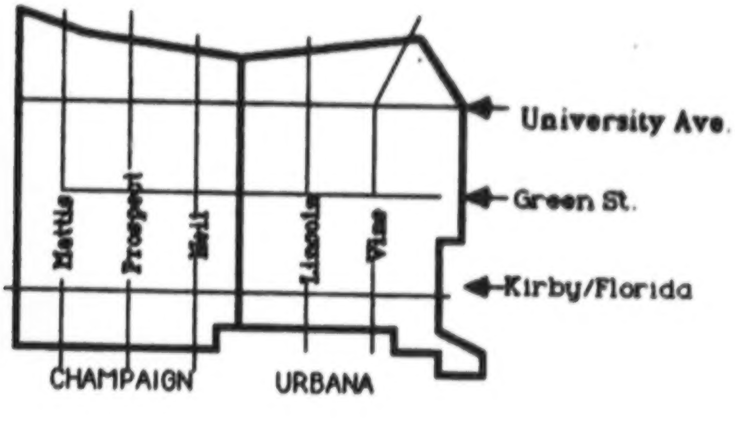
17. How long have you been a resident of Champaign County? ________ years 8-9

18a. In what city, village, or township do you live?

______________________________ 10-11

RESIDENTS OF CITIES OF CHAMPAIGN AND URBANA:

b. Please place an X in the section of this map of Champaign/Urbana indicating the approximate location of your residence. 12-13


University Ave.
Green St.
Kirby/Florida
Mattis
Prospect
Neil
Lincoln
Vine
CHAMPAIGN
URBANA

Comments and Suggestions: ______________________________ 14

____ 15-79/

____ 80/4

____

____

BE SURE TO HAND THIS REPORT TO THE ATTENDANT AT THE BIG "STOP HERE" SIGN. YOU WILL THEN BE DIRECTED TO THE APPROPRIATE DROP-OFF STATION FOR YOUR MATERIALS. THANK YOU.

APPENDIX J

HOUSEHOLD HAZARDOUS WASTE COLLECTION PROGRAMS IN THE U.S.: EXAMPLES AND CONTACT PEOPLE

HOUSEHOLD HAZARDOUS WASTE COLLECTION PROGRAMS IN THE U.S.: EXAMPLES AND CONTACT PEOPLE

Taken from various sources, especially Duxbury, D. 1986. Household Hazardous Waste Collection Programs, 1981-1986. Medford, MA: Tufts University, Center for Environmental Management (telephone 617-381-3486).

TABLE J.1. Number of Collection Programs by States, 1981-1986

State	Number of Programs	State	Number of Programs
Alabama	1	Montana	0
Alaska	16	Nebraska	3
Arizona	*	Nevada	0
Arkansas	0	New Hampshire	17
California	69	New Jersey	25
Colorado	13	New Mexico	1
Connecticut	35	New York	16
Delaware	*	North Carolina	2
Florida	63	North Dakota	0
Georgia	0	Ohio	2
Hawaii	1	Oklahoma	0
Idaho	0	Oregon	4
Illinois	*	Pennsylvania	2
Indiana	5	Rhode Island	12
Iowa	2	South Carolina	*
Kansas	2	South Dakota	0
Kentucky	1	Tennessee	1
Louisiana	2	Texas	6
Maine	0	Utah	0
Maryland	1	Vermont	8
Massachusetts	144	Virginia	3
Michigan	25	Washington	22
Minnesota	11	West Virginia	0
Mississippi	0	Wisconsin	15
Missouri	0	Wyoming	0

* State's first collection program was scheduled for sometime in 1987.
From Duxbury (1986).

TABLE J.2. Examples of Household Hazardous Waste Collection Events

City/Place and State	Event Year	Sponsor (Funder)	Local Contact		Waste Hauler		Total Cost	Gallons Collected	Number of Participants
			Name	Phone	Name	Phone			
Anchorage, AK	1986	Alaska Dept. of Env. Cons.	Colleen Burgh	(907) 274-2533	Crosby & Overton	NA	$90,000	14,960	300
Denver Metropolitan Area, CO	1985	Denver & Boulder (8 sites)	Jane Robinson	(303) 761-1340	CECOS International, Inc.	(303) 341-9370	$78,000	14,520	1,116
West Hartford, CT	1986	Town of W. Hartford	Art Griesel	NA	Northeast Solvents	(617) 683-1002	$26,600	4,248	NA
Southington, CT	1986	State of Connecticut	Leslie Lewis	(203) 566-3489	McDonald & Watson	NA	$10,000	1,320	220
Palm Beach County, FL	1985	Fla. Dept. of Env. Prot'n	Jan Kleman	(904) 487-3892	GSX Services, Inc.	(800) 334-5953	NA	129,946*	261
Clewiston, Hendry Co., FL	1985	Fla. Dept. of Env. Prot'n.	Jan Kleman	(904) 487-3892	GSX Services, Inc.	(800) 334-5953	NA	1,000*	8
Champaign County, IL	1987	Intergov'tal Solid Waste Disposal Assn.	Christina Komadina	(217) 333-8956	GSX Services, Inc.	(800) 251-1227	$82,017	10,340	358
Indianapolis, IN	1985	City/ County	Bill Clark of GSX	(800) 251-1227	GSX Services, Inc.	(800) 251-1227	$33,023	6,675	NA
Zionsville, IN	1985	City	Bill Clark of GSX	(800) 251-1227	GSX Services, Inc.	(800) 251-1227	$6,560	935	NA

(Table J.2 continued)

TABLE J.2.--Continued.

City/Place and State	Event Year	Sponsor (Funder)	Local Contact		Waste Hauler		Total Cost	Gallons Collected	Number of Participants
			Name	Phone	Name	Phone			
Cedar Rapids, IA	1986	Iowa Dept. of Nat. Res.	John Seyb	(515) 281-4076	AC Industry	(916) 343-5488	NA	NA	NA
Baton Rouge, LA (4 sites)	1985	Env. Control Dept., Dow Chemical Co.	Charles Goldsmith	(504) 389-6407	Dow Chemical Co.	(504) 389-6407	$22,000	6,500	NA
Baton Rouge, LA (6 sites)	1986	Env. Control Dept., Dow Chemical Co.	Charles Goldsmith	(504) 389-6407	Dow Chemical Co.	(504) 389-6407	$35,000	16,000*	NA
Lexington & Lincoln, MA	1986	Lexington Town Health Department	George Smith	(617) 862-0500	Northeast Solvents	(617) 683-1002	$36,600	7,040	450
Wellesley, MA	1986	Metro Area Plan Comm.	Judy Weigand	(717) 451-2770	Northern Solvents	(617) 683-1002	$12,100	1,308	NA
Saginaw & Midland Bay, MI	1986	Dow Chemical Co.	Patty Temple	(517) 636-5783	Dow Chemical Co.	(617) 636-5783	NA	NA	NA
Ann Arbor & Washtenaw Co., MI	1986	Washtenaw County Health Dept.	Steve Mandelle	(313) 994-2457	Drug & Lab Company	(616) 685-9824	NA	NA	NA
Traverse City, MI	1987	Grand Traverse County	Jeff DeHaan	(616) 922-4620	Dow Chemical Co.	NA	$40,000	3,300	530

(Table J.2 continued)

TABLE J.2.--Continued.

City/Place and State	Event Year	Sponsor (Funder)	Local Contact		Waste Hauler		Total Cost	Gallons Collected	Number of Participants
			Name	Phone	Name	Phone			
Winona County, MN	1985	Minn. Pollution Control Board	Susan Ridgley	(612) 297-1453	NA	NA	$11,825	NA	NA
Robertson County, TN (rural, 3 locations)	1986	GSX Services, Inc.	Bill Clarke	(800) 251-1227	GSX Services, Inc.	(800) 251-1227	NA	NA	NA
Kent, WA	1985	City Fire Department	Asst. Fire Chief Berg	(206) 872-3360	Chemical Processors	NA	NA	180	66
Kent, WA	1986	City Fire Department	Asst. Fire Chief Berg	(206) 872-3360	Crosby & Overton	NA	NA	320	116
Spokane, WA	1986	City of Spokane	David Harnes	(509) 456-2602	Chem-Safe Co.	NA	$18,585	2,800	361
Outagamie County, WI (Appleton)	1985	Outagamie County	David Muench	(414) 735-5122	Chemical Waste Management	(312) 396-1920	$15,000	1,665	159
Portage County, WI (Stevens Point)	1986	Portage County	John Leatherman	(608) 742-2191	GSX Services, Inc.	(800) 251-1227	$13,652	1,560	115
Dane County, WI (Madison)	1986	Dane County	Kathy Unertl	(608) 266-4330	GSX Services, Inc.	(800) 251-1227	$33,578	859	353

* Quantity given in pounds of weight, NOT gallons of volume.
NA = Not Available.

APPENDIX K

TIPS ON SITE COLLECTION, SITE PREPARATION, CONTRACTOR SELECTION, AND INSURANCE AND LIABILITY

TIPS ON SITE SELECTION, SITE PREPARATION, CONTRACTOR SELECTION, AND INSURANCE AND LIABILITY

A. Choosing a Site

1. Accessibility: Choose a site accessible by car or pickup truck in all kinds of weather.

2. Easy to find: Choose a site with name recognition or very near a site with name recognition and with an address that is easy to find.

3. Parking and drive-through needs: Does the site have ample parking for workers and volunteers? Does it have ample room for a long line of (up to 25) vehicles waiting to drop off materials?

4. Environmentally sound: Ask the local health department to comment.

5. Weather: Does the site make sense for the typical weather pattern?

6. Nonabsorbent surface under the collecting area.

7. Community scheduled events: Double check other events scheduled in the community at the same time. Will other events detract from yours?

8. Time of day and day of week: Are some times better than others in your community? Sundays work okay because the morning rush is reduced and the flow therefore more evenly spread throughout the day.

9. Advance proposals from appropriate institutions: For example, State department of natural resources or other environmental protection agencies, city and county public health departments, fire department, police or sheriff.

10. A parking lot near a fire station with a fire truck parked at the site is a common example of successful siting. A public works facility parking lot or a fairground site is also often used.

11. A site that is (or can be) covered by liability insurance is also essential.

B. Preparing the Site

1. Plastic covering for the area where the wastes will be sorted and packaged.

2. Dumpsters available for nonhazardous and nonrecyclable products.

3. Barrels available for recyclable oil, and arrangements with an oil recycler to be present to help determine eligibility and to receive the oil.

4. Boxes or bins available for recyclable latex paint.

5. Make arrangements for recycling latex paint (e.g., a theater department of a high school or college, a volunteer group that does low-income housing repairs).

6. Safety truck or other access to a communications center, eye wash, first aid.

7. Tables, chair, pens at entrance location for collecting intake forms.

8. Preparation of intake forms for survey of participants regarding where people came from, how they heard of event, why they came, etc. Intake forms can be used to get some idea of what different types of people brought materials to the event to drop off, but don't expect everyone to know exactly what they brought.

9. Intake forms should collect any information that the hauler or contractor needs but cannot otherwise get, and any information desired by the sponsor regarding who participates.

10. Traffic pattern set-up: Ropes, cones, signs.

11. Determine how to handle unidentified products; discuss with contractor/hauler.

12. Organize volunteers for traffic direction, completion of intake forms, etc.

13. Licensed hauler or someone else should provide respirator and neoprene gloves for collectors. Collectors should wear protective clothing with long sleeves and boots.

14. Explosives and ammunition might be brought to the event to be dropped off. Have a qualified person (e.g., from the fire department or police department) to handle this material.

15. Food: Don't allow in the processing area. Some chemicals react badly to water.

16. Spills: Have vermiculite or kitty litter handy, containers for pick-up.

17. Record keeping: Have someone (probably those handling the intake forms) keep accurate counts of numbers of vehicles and numbers of households represented. Records on materials brought to the event may be the responsibility of the hauler/contractor, supplemented by the intake form. Keep names of authorized workers and volunteers.

18. No smoking signs.

19. Banners at approaches to the site and at the site: They may be put up several days in advance to acquaint residents with the location.

20. Overflow: Be prepared with slips of paper explaining that you have reached capacity if you must turn away some of the participants who arrive later in the event. Or be prepared with contingency plans for receiving more material than you have initially budgeted for.

21. Close-down: Besides normal clean-up, check the approaches to determine that impatient prospective participants did not leave material there.

C. Hiring a Contractor/Hauler

1. Getting names of contractors: Check with others who have used one in a collection event elsewhere (see Appendix B for examples).

2. Reputation: Again, check with others who have used them. Ask contractors for references.

3. Services provided: How much do they do, and how much does the local sponsor have to do to collect, identify, sort, pack, and label materials?

4. Disposal destinations: How do they dispose of the materials? Do they assist in any recycling efforts? How safe are the disposal sites and methods?

5. What kind of packing do they use? Lab packs with vermiculite for all materials, for liquid materials only, or for no materials? The method of packing will have enormous impact on how many barrels you fill for a given quantity of materials taken in.

6. What is the cost? Is the cost on a per-barrel basis? What is the cost for different methods of packing? What is the cost if all recyclables and nonhazardous materials are removed before packing? What services are included in this cost?

7. How much time is required after the event for completion of packing and hauling away? When will the collection site be vacated?

8. Considering the complexity of all of the above, the process of finding a contractor should begin at least four months before the event.

D. Insurance and Liability

1. The government agency or private party owning the collection site may already have adequate insurance for the collection event activities. Check it out.

2. The contractor/hauler may have insurance for activities at the event. Check to determine what their insurance covers. Does it include liability for volunteers and participants (those bringing material to drop off)?

3. Attorneys for the sponsors should check the federal and state laws concerning liability at such an event and should review the contract with the contractor/hauler (and any other insurance contracts) to ensure proper coverage.